TECHNOLOGY DEPT:

NATIONAL PETROLEUM NEWS

July 24, 1940

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JUL 25 1940
DETROIT

Destructive Alkylation Produces High-Octane Aviation Gasoline

Alkylation with aluminum chloride as catalyst made economically practical by eliminating bi- and polycyclic hydrocarbons from feed stock.....Page R-262

• • •

Petroleum Solvents for Paints Compared by New Solvency Tests

Page R-270

• • •

A.S.T.M. Standards Activities Break Records at Annual Meet

Page R-274

NEWS IN BRIEF

Oil industry weighs effect of North Texas crude cuts. Page 13.

Continental Oil Co. sees no crude price cuts in Oklahoma or Kansas. Page 13.

August gasoline demand will soar to 56,200,000 barrels. Page 13.

Federal decision in Iowa holds that bulk plants are not "retail stores." Page 19.

Federal Power Commission threatens to step in to control natural gas production. Page 15.

Trainload rates weighed by ICC after hearing pros and cons. Page 23.

Options taken on 120,000 barrels of Pennsylvania bright stock. Page 14.

California's Oil Administrator St. Clair promised industry support. Page 20.

Octane rise on all grades of gasolines charted. Page 15.

Canadian oil-man legislator hits wide powers of Oil Controller. Page 16.

Federal gasoline tax collections in June break record for any single month. Page 19.

REFINING TECHNOLOGY EDITION

LASTING Strength

MORRISON ENGINEERS have designed these valves to meet the constantly increasing demand of the industry. Produced by skilled workmen — with fine watch precision and the highest grade brass obtainable, these values are characteristic of all MORRISON OIL EQUIPMENT. Their sturdy construction assures lasting usefulness. Write for free catalog covering complete line of oil equipment.

Fig. 240
FLANGED CROSS VALVE

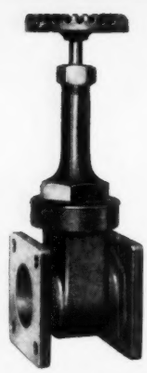

Fig. 234
FLANGED GATE VALVE

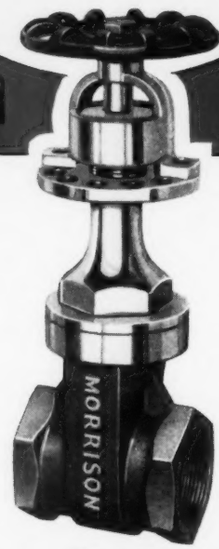

Fig. 235B
NEW TYPE LOCKING GATE VALVE

MORRISON BROS. COMPANY

OIL EQUIPMENT HEADQUARTERS

DUBUQUE, IOWA

NATIONAL PETROLEUM NEWS

July 24, 1940

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COMING MEETINGS . . .

AUGUST

SAE West Coast Transportation & Maintenance Meeting, New Washington Hotel, Seattle, Fri.-Sat., Aug. 16-17.
National Assn. of Petroleum Retailers, Annual Convention, LaSalle Hotel, Chicago, Tues.-Thurs., Aug. 20-22.

SEPTEMBER

American Society of Mechanical Engineers, Spokane, Wash., Tues.-Thurs., Sept. 3-5.
American Chemical Society, Detroit, Mon.-Fri., Sept. 9-13.
Oil Trades Assn. of New York, Sports Day, Pelham Country Club, Pelham, N. Y., Tues., Sept. 17.
National Petroleum Assn., Hotel Traymore, Atlantic City, N. J., Wed.-Fri., Sept. 18-20.
SAE National Tractor Meeting, Schroeder Hotel, Milwaukee, Wis., Tues.-Wed., Sept. 24.25.

OCTOBER

National Lubricating Grease Institute, Annual Convention, Stevens Hotel, Chicago, Mon.-Tues., Sept. 30, Oct. 1.
North American Gasoline Tax Conference, Whitley Hotel, Montgomery, Ala., Thurs.-Sat., Oct. 3-5.
Western Petroleum Refiners Assn., Regional Meeting, Wichita, Kansas, Fri., Oct. 4.
American Gas Assn., Atlantic City, New Jersey, Mon.-Thurs., Oct. 7-10.
National Safety Congress & Exposition, Hotel Stevens, Chicago, Ill., Mon.-Fri., Oct. 7-11.
Indiana Independent Petroleum Assn., Fall Convention, Hotel Severin, Indianapolis, Wed.-Thurs., Oct. 9-10.
Automobile Manufacturers Assn., 1940 Autoshow, New York, Sat., Oct. 12.
SAE Annual Dinner, Hotel Commodore, New York, N. Y., Mon., Oct. 14.
Independent Petroleum Assn. of America, Annual Meeting, Dallas, Texas, Wed.-Fri., Oct. 16-18.
American Institute of Mining and Metallurgical Engineers, Petroleum Division, Los Angeles, Oct. 17-18.
National Dixie Distributors, Inc., Hot Springs, Ark., Monday, Oct. 21.
Western Petroleum Refiners Assn., Regional Meeting, Shreveport, La., Fri., Oct. 25.
Oil Trades Assn. of New York, Annual Banquet Waldorf-Astoria Hotel, New York, N. Y., Tues., Oct. 29.

NOVEMBER

California Natural Gasoline Assn., Los Angeles, Nov. 1.
SAE National Aircraft Production Meeting (and Engineering Display), Hotel Biltmore, Los Angeles, Calif., Thurs.-Sat., Oct. 31-Nov. 2.
Texas Mid-Continent Oil & Gas Assn., Fort Worth, Tex., Thurs.-Sat., Oct. 31-Nov. 2.
American Assn. of Petroleum Geologists, Los Angeles, Calif., Thurs.-Fri., Nov. 7-8.
American Petroleum Institute, 21st Annual Meeting, Stevens Hotel, Chicago, Ill., Mon.-Fri., Nov. 11-15.
Arkansas Oil Dealers Assn., Little Rock, Nov. 14.

DECEMBER

American Institute of Chemical Engineers, New Orleans, La., Mon.-Fri., Dec. 2-6.

THIS WEEK WITH NPN...

ASK 'EM AND SELL 'EM

Just because the cool drink industry thinks that summer weather is some sort of a "seventh heaven", there is no reason why oil marketers and service station dealers should not cash in on some of the "heavenly" lubrication profits. Car engines get much warmer than the drivers, and while a lemonade would not go well in a crankcase, fresh clean oil and a chassis job gives any engine a thrill. For tested and tried suggestions, on how to ask 'em and sell 'em, see pages 25 and 26.

ON THEIR TOES

"Bring 'em back"—alive of course—and keep 'em coming back, is certainly the idea behind the large-scale lubrication campaigns launched by automobile manufacturers. With more than a little encouragement, car dealers all over the country are after lubrication jobs previously done at service stations. Figuratively speaking, car dealers are giving away "gold bricks" and buyers of new cars like it. With no comment, NPN presents the facts. Draw your own conclusions. Page 30.

FUN AT PICNICS

This department never lets business interfere with a picnic. Last week was no exception, when the Cleveland Assn. of Petroleum Retailers sent us an invitation to their free-for-all frolic at Geauga Lake Park. While the party was given primarily for Cleveland's motoring public and representatives of dealers' supplying companies, we too had fun. So much fun, that we're still applying Sloan's liniment. For details, see page 21. Before leaving the subject of picnics, take a squint at the Personals Page for info on how the boys at Phillips Petroleum Co. carry on a cracker-munching contest.

HERE'S HOW IN MISSOURI

When the Home Oil Co., St. Joseph, Mo., sells an oil burner, the sale is not forgotten with the cash drawer's ring. This ring is only a signal to start building confidence and a market for repeat fuel oil orders. Customers are allowed to have their tanks filled during summer months and not pay a cent until cold weather forces them to "turn on the heat". Oil burner service? Certainly; but on a scientific basis—and with a smile—that's part of this business secret. For the entire secret, see page 40.

ADVERTISING PAGES REMOVED

METERS TO MEET *YOUR* DEMANDS FOR ACCURACY, SIMPLICITY AND LOW MAINTENANCE

Good news for your wallet

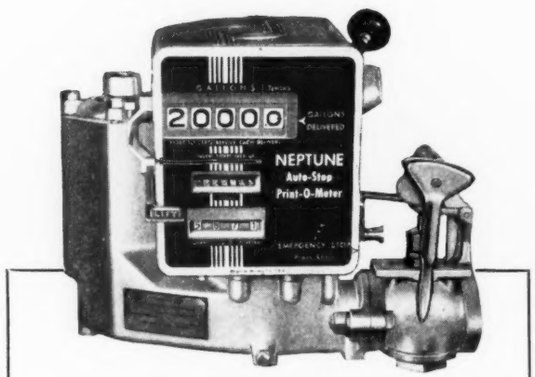
when a Red Seal Meter watches your deliveries

Here is a truck meter that tickles the wallet on economy . . . a truck meter that is popular with fuel oil distributors everywhere.

Only a casual inspection is needed to show you why. This 1¼" Red Seal Printing Meter is *compact* and *lightweight*, making it easier to install even in cramped places. It requires fewer pipe connections, just in, out, and vent—which saves on labor, piping and fittings, and reduces the possibility of leakage. Best of all, this Red Seal Compact Truck Meter is so simple that, when necessary, your own man can take it apart for easy inspection and cleaning!

Decide *now* to enjoy the savings and other worthwhile benefits that these exactingly accurate Red Seal Meters make possible. Write for informative bulletins.

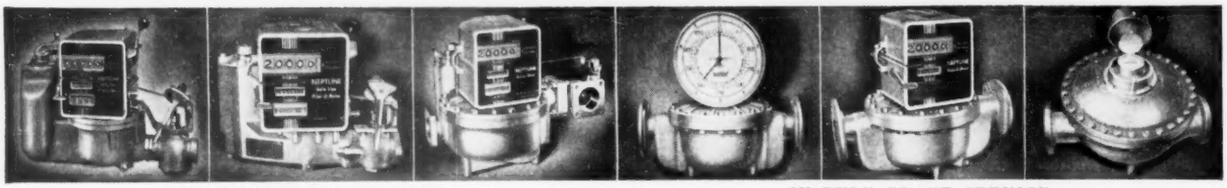
NEPTUNE METER COMPANY
Main Office: 50 West 50th Street, New York, N.Y.
Atlanta, Boston, Chicago, Dallas, Denver, Kansas City, Los Angeles, Louisville, Portland, Ore., San Francisco
In Canada: *Neptune Meters, Limited, 345 Sorauren Avenue, Toronto, 3.*



INEXPENSIVE TO BUY, INSTALL, OPERATE

Used principally on fuel oil trucks having up to 800 gallons total capacity, this 1¼" Red Seal Compact Auto-Stop, with Print-O-Meter Model 314, is inexpensive to buy, install and operate. Compact, combining in one housing the metering unit, strainer and air release, it takes up little room and is recommended for rates of flow up to 30 g.p.m. It automatically stops flow after pre-set gallonage is delivered. Provides your customer with a printed delivery receipt.

NEPTUNE RED SEAL METERS for certified fuel oil truck deliveries



IN TANK TRUCK SERVICE

2" Direct Reading Auto-Stop Compact Ticket Printer

1¼" Direct Reading Auto-Stop Compact Ticket Printer

3" Direct Reading Auto-Stop Compact

IN BULK PLANT SERVICE

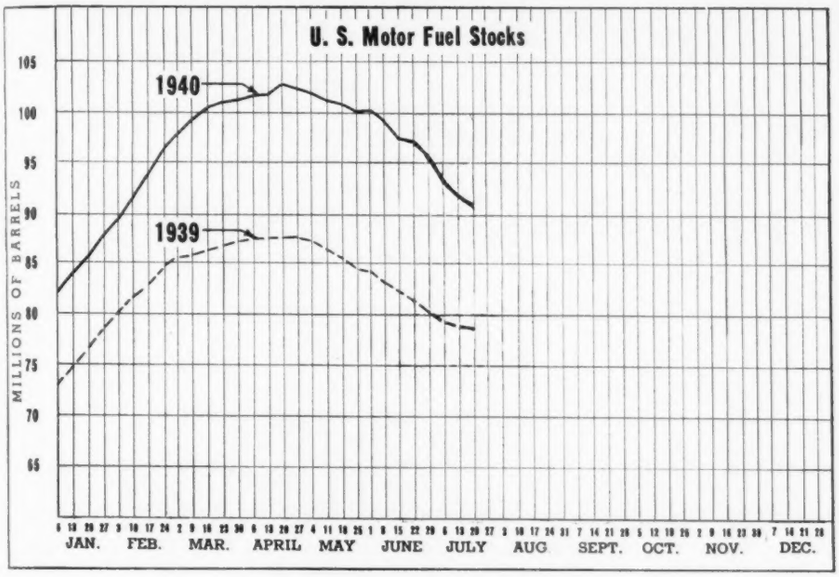
Vertical Dial Meter for loading racks

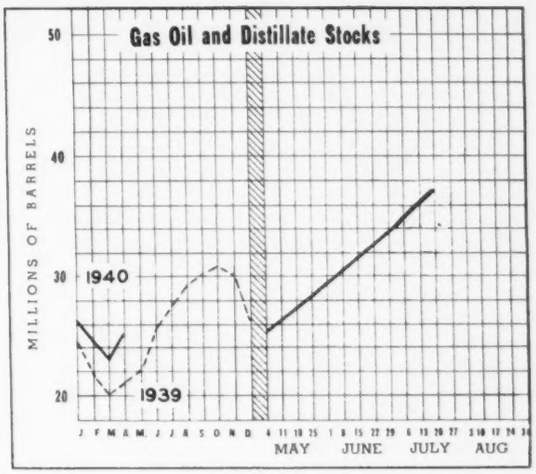
Ticket Printing Meter for loading racks

Meter for barge or tank car unloading

LATEST OIL INDUSTRY

· STATISTICS ·





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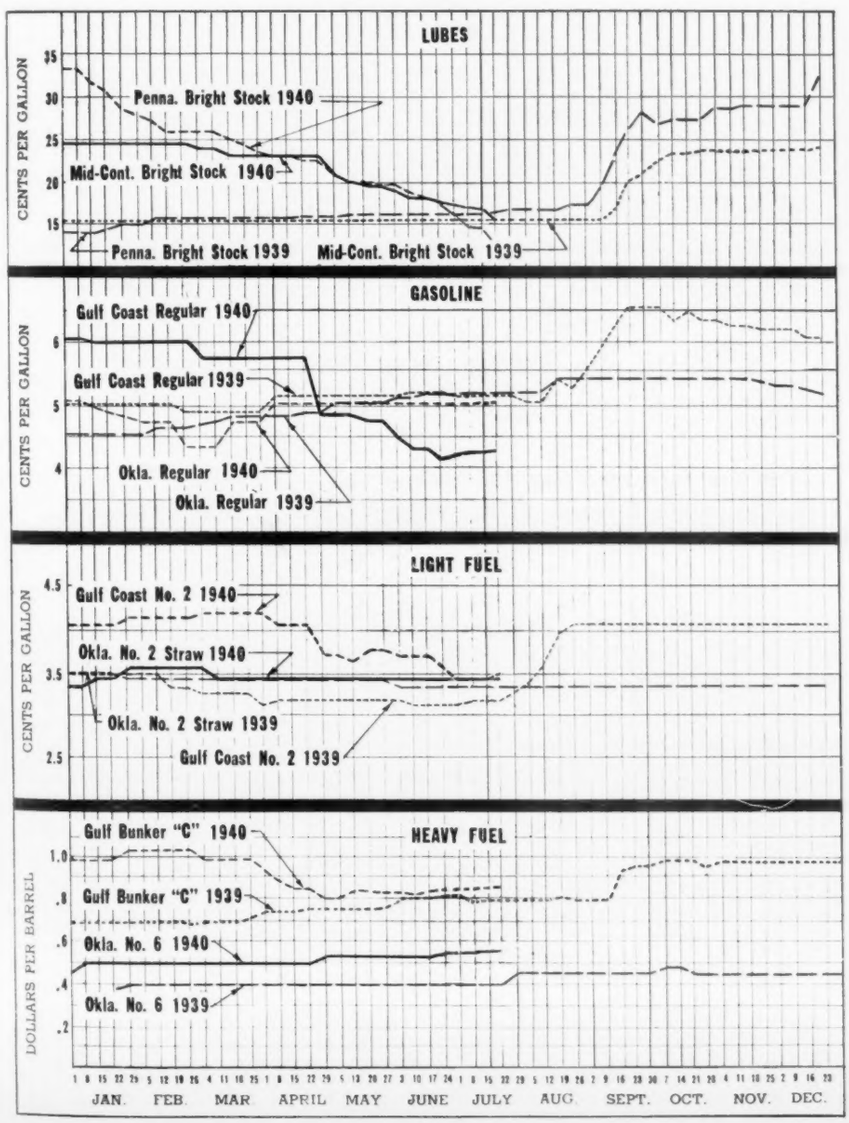
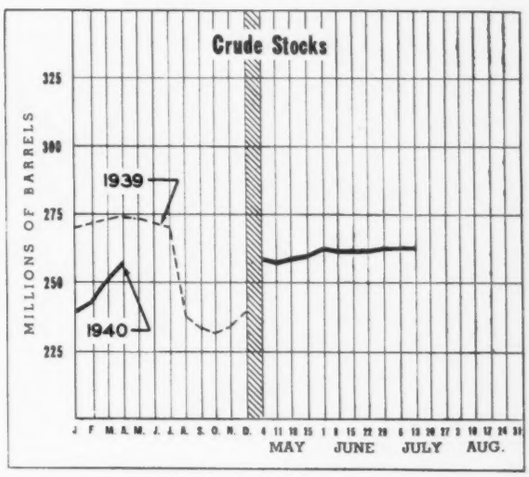
REFINERY TANK CAR PRICES





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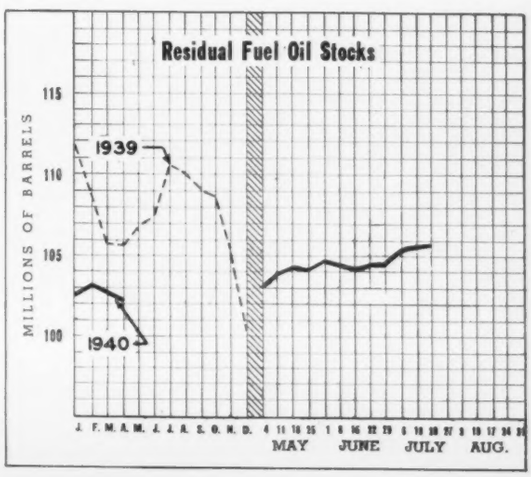


National Petroleum News' Engineering Survey Shows:

FOR SAFETY'S SAKE

LUBRICATE EVERY 1000 MILES THIS SUMMER

Use This Sign

TO SELL 1000 MILE LUBRICATION

● These signs—posted in your own office, bulk plant, and service stations will be a *constant* reminder to you . . . your general salesmen . . . your dealers . . . and your service station salesmen to continuously SELL 1000 Mile Lubrication. They are the supplement to your own sales promotion plans to help keep your summer program in high gear—*every minute of every day.*

In the service station, these signs flash the important "Lubricate Every 1000 Miles" message to motorists but their Big Value to you is the PERPETUAL reminder to the salesman to solicit and SELL regular 1000 Mile Lubrication.

Oil Marketers from coast to coast are using these signs just this way. Orders are coming in every day. One thousand signs for an oil company division office with headquarters in Chicago . . . 525 signs in one order for North Dakota . . . 150 for an alert marketer in Montana . . . 101 for an oil marketer in Cincinnati . . . another 100 to Salt Lake City . . . 26 to New Jersey . . . 25 to Philadelphia . . . and so on . . .

The signs are printed in two colors. Size: 12½ inches by 19 inches. Quantity prices are in the next column.

HERE'S HOW MARKETERS ARE USING IT

Manager Charles Dillon, of Horton Oil Co.'s station, Lebanon, Ind., sells a 1000-mile oil change

PRICES OF DISPLAY SIGNS

Quantity	
1 to 25 signs	9c each
26 to 50 signs	8½c each
51 to 100 signs	8c each
101 to 500 signs	7½c each

501 or more signs—special prices on application. Remittance must accompany all orders for 500 signs or less. Ohio purchasers please add 3% state tax.

Reprints Still Available.

Reprints of NPN's articles in the summer lube sales campaign give station salesmen the sound engineering reasons for frequent lubrication and crankcase drains. They are written especially for him so that he will know why he should sell 1000 Mile Lubrication. Reprint No. 1 contains the Summer Lube articles from the June 26th issue; Reprint No. 2 carries the July 10th article: "Frequent Lubrication Needed Say Bearing Manufacturers." Prices in quantity lots in the next column.

PRICES OF REPRINT NO. 1 AND NO. 2

Quantity	Reprint No. 1	Reprint No. 2
1 to 25 copies	8c each	7c each
26 to 50 copies	7c each	6c each
51 to 100 copies	6c each	5c each
101 to 500 copies	5c each	4c each

501 or more copies of either reprint—special prices on application. When ordering, be sure to designate the number of each reprint wanted. Remittance must accompany all orders for 500 copies or less. Ohio purchasers please add 3% State Sales tax.

—CLIP AND MAIL—

NATIONAL PETROLEUM NEWS, 1213 West Third Street, Cleveland, Ohio

☐ Attached is check covering the order below for NPN's Lubrication Campaign Material.

☐ Quote us on the following quantity of NPN's Lubrication Campaign Material.

_____Window Signs (Quantity) _____Reprint No. 1 (Quantity) _____Reprint No. 2 (Quantity)

Company..... Individual .....

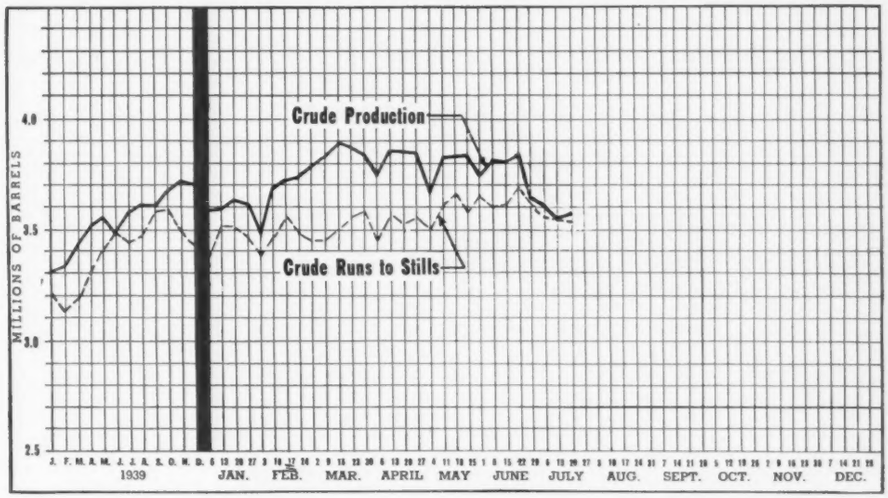
Street Address ..... City, State .....

· STATISTICS ·

Crude Oil Production for the U. S.

(American Petroleum Institute figures)

	Week Ended July 20 Barrels	Week Ended July 13 Barrels
Oklahoma	417,250	409,800
Kansas	189,950	178,200
Nebraska	250	200
Texas	1,168,050	1,143,350
Louisiana	285,950	281,950
Arkansas	72,450	72,400
Mississippi	8,000	7,300
Illinois	460,500	485,850
Indiana	13,950	9,700
Eastern (Ill. and Ind. excluded)	90,100	92,200
Michigan	54,100	54,150
Wyoming	75,300	72,600
Montana	18,700	19,150
Colorado	3,850	3,750
New Mexico	104,350	105,050
California	617,600	625,100
Total U. S.	3,580,350	3,560,750
Crude Imports	149,000	109,140
Total New Supply	3,729,350	3,669,890



Weekly Change in Crude Oil Stocks*

(Thousands of barrels)

Grade or origin	June 29	July 6	July 13	Change from July 6
Pennsylvania Grade	4,452	†4,506	4,568	+ 62
Other Appalachian	1,317	1,344	1,380	+ 36
Lima-Michigan	1,493	1,471	1,400	— 71
Illinois-Indiana	21,373	22,024	21,855	— 169
Arkansas	3,355	3,369	3,341	— 28
Kansas	7,596	7,568	7,125	— 443
Louisiana:	12,356	12,339	12,636	+ 297
Northern (inc. Mississippi)	4,346	4,386	4,170	— 216
Gulf Coast	8,010	7,953	8,466	+ 513
New Mexico	7,014	6,871	6,792	— 79
Oklahoma	64,812	65,379	65,587	+ 208
Texas:	84,051	82,067	82,075	+ 8
East Texas	18,922	18,365	19,020	+ 655
West Texas	19,856	19,015	19,274	+ 259
Gulf Coast	21,009	20,704	20,050	— 654
Other Texas	24,264	23,983	23,731	— 252
Rocky Mountain	15,916	16,009	15,877	— 132
California	35,044	35,399	35,008	— 391
Foreign	3,280	3,386	3,350	— 36
Total United States refinable	262,059†	261,732	260,994	— 738
Heavy in California	13,315	13,020	13,112	+ 92

†Revised.
*As compiled by U. S. Bureau of Mines.

N.P.N. Gasoline Index

	Dealer T.W. Cents	Tank Car per Gal.
July 22	8.99	5.40
Month ago	8.94	5.24
Year ago	9.66	5.68

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of 9 wholesale markets for regular-grade gasoline.

Refinery Production of Gasoline in July Estimated by U. S. Bureau of Mines

District	Barrels
East Coast	6,690,000
Appalachian	1,870,000
Indiana-Illinois	10,640,000
Oklahoma	2,920,000
Kansas	2,770,000
Texas Inland	3,610,000
Texas Gulf Coast	11,960,000
Louisiana Gulf Coast	1,460,000
Inland Louisiana-Arkansas	880,000
Rocky Mountain	1,380,000
California	6,320,000
Total U. S.	50,500,000

Summary of Bureau of Mines Forecast for August†

(Barrels)

	Forecast Aug. 1940	Forecast July 1940	Actual Aug. 1939
Demand for Motor Fuel*:			
Domestic demand	56,200,000	54,800,000	53,828,000
Exports	1,900,000	2,000,000	4,208,000
	58,100,000	56,800,000	58,036,000
Supply of Motor Fuel:			
Straight-run and cracked gasoline production	47,370,000	47,320,000	48,551,000
Natural gasoline used at refineries	3,130,000	2,780,000	3,092,000
Total refinery production	50,500,000	50,100,000	51,643,000
Benzol and other natural gasoline	1,200,000	1,100,000	1,017,000
Decrease in finished stocks	6,400,000	5,600,000	5,376,000
Available supply	58,100,000	56,800,000	58,036,000
Crude Oil Requirements:			
Percent yield of gasoline from crude	42.80	43.10	45.11
Refinery crude required	110,690,000	109,780,000	107,632,000
Daily average	3,570,600	3,541,300	3,472,000
Foreign crude runs	3,300,000	3,200,000	3,022,000
Exports	3,700,000	3,700,000	5,969,000
Fuel and losses	2,300,000	2,200,000	2,332,000
Total demand for domestic crude	113,390,000	112,480,000	112,911,000
Daily average	3,657,700	3,628,400	3,642,300
Decrease in domestic stocks	.....	.....	32,046,000
Actual production	.....	.....	80,865,000
Daily average	.....	.....	2,608,500

*The term "Motor Fuel" as used in this report includes gasoline, naphtha, and benzol used for all purposes, but does not include heavier distillates used in the operation of tractors or burned in Diesel engines.

†For analysis of this data and detailed figures on estimated crude demand by states, see page 13.

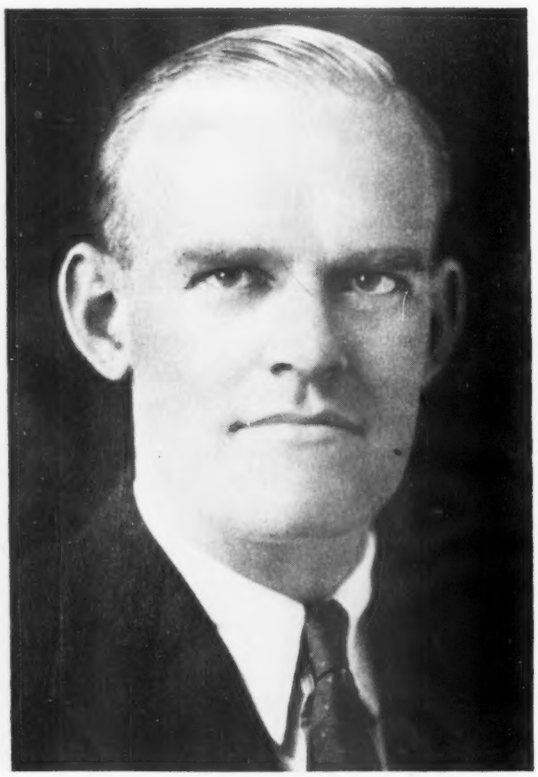
A. P. I. Weekly Refinery Report

(Figures in Thousands of Barrels of 42 Gallons Each)

Districts	Daily Average Crude to Stills Week Ended July 20	Daily Average Crude to Stills Week Ended July 13	Per Cent of Reporting Capacity Operated Week Ended July 20	Per Cent of Reporting Capacity Operated Week Ended July 13	(a) Gasoline Production Week Ended July 20	(a) Gasoline Production Week Ended July 13	Stocks Total Finished & Unfinished Motor Fuel (b) Week Ended July 20	Stocks Total Finished & Unfinished Motor Fuel (b) Week Ended July 13	Stocks of Gas Oil & Distillates At Refineries Week Ended July 20	Stocks of Gas Oil & Distillates At Refineries Week Ended July 13	Stocks of Gas Oil & Distillates At Terms. Trans. Pipelines Week Ended July 20	Stocks of Gas Oil & Distillates At Terms. Trans. Pipelines Week Ended July 13	Stocks of Residu.. Fuel Oil At Refineries Week Ended July 20	Stocks of Residu.. Fuel Oil At Refineries Week Ended July 13	Stocks of Residu.. Fuel Oil At Terms. Trans. Pipelines Week Ended July 20	Stocks of Residu.. Fuel Oil At Terms. Trans. Pipelines Week Ended July 13
East Coast	558	560	86.8	87.1	1,535	1,439	22,054	22,671	5,797	5,300	6,663	6,475	4,967	4,895	5,398	5,375
Appalachian	119	117	83.8	82.4	427	407	3,586	3,475	228	219	105	11	490	488	.....	.....
Ind., Ill., Ky.	590	603	88.1	90.0	2,218	2,380	15,847	15,645	3,628	3,590	491	562	3,277	3,276	154	97
Okla., Kans., Mo.	269	268	83.3	83.0	(c)961	(c)943	6,714	6,685	1,299	1,236	59	61	2,053	2,065	.....	.....
Inland Texas	114	123	68.3	73.7	481	571	1,773	1,786	339	321	.....	.....	1,336	1,349	.....	.....
Texas Gulf	827	837	90.5	91.6	2,601	2,436	13,958	13,926	4,782	4,453	806	722	5,765	5,455	233	277
La., Gulf	112	122	70.0	76.3	287	301	2,646	2,533	1,189	1,160	32	21	1,011	1,040	305	233
No. La., Ark.	41	42	78.8	80.8	115	113	514	518	249	259	19	14	491	491	.....	.....
Rocky Mt.	41	45	62.1	68.2	163	198	1,190	1,252	124	131	.....	.....	564	596	.....	.....
California	485	466	66.4	63.8	1,168	1,159	16,477	16,851	7,960	7,920	2,074	2,005	55,384	55,430	22,211	22,403
Total Reporting	3,156	3,183	81.6	82.3	9,956	9,947	84,759	85,342	25,595	24,589	10,249	9,972	75,338	75,085	28,301	28,385
U. S. Total (d)	3,540	3,565			11,378	11,368	91,789	92,372	26,555	25,544	10,949	10,677	77,363	77,120	28,501	28,590
U. S. Total 7-20-39 (d)	3,448				11,390		78,711		25,043		9,069		85,969		28,531	

(a) Includes straight-run, cracked and natural blended.
(b) Includes stocks at refineries, in bulk-terminals, pipe lines and in transit.
(c) 12% of reporting capacity in this district did not report gasoline production.
(d) Estimated, U. S. Bureau of Mines basis.

Head of Pennsylvania Grade Crude Oil Assn. . . . .



Parker L. Melvin

● Parker L. Melvin, Bradford, Pa., oil producer, who has just been elected president of Pennsylvania Grade Crude Oil Assn., was not worried about a business connection when he graduated from Dartmouth College in 1917, for he joined the Army and served overseas in the first World War as an artillery lieutenant.

Immediately after the war, Mr. Melvin returned to his native city, Bradford, and entered the oil producing business. At present, Mr. Melvin is president of the Towne-Melvin Oil Co. of Bradford, with interests both in Pennsylvania and the West. In his position as association president, he succeeds W. F. Clinger, Warren, Pa., who held the post for past three years.

Recently, Mr. Melvin was appointed by Pennsylvania's Governor James as observer for the Keystone state at future meetings of the Interstate Oil Compact Commission.

The other officers elected to serve for one year are: A. E. Booth, Bradford and Otto Walchli, Wellsville, N. Y., vice-presidents; John A. Beck, Butler, recording secretary; S. Messer, Oil City, treasurer; W. R. Reitz, Oil City, assistant treasurer; J. E. Moorhead, Oil City, executive secretary; S. F. Pratt, Oil City, assistant secretary; Fayette B. Dow, Washington, general counsel.

When the first organization meeting of the Pennsylvania Grade Crude Oil Assn. was held, Aug. 31, 1923, there were about 50 members. Although there are 766 active members today, the membership, at one time, was even greater.

"The purpose for which the association was formed is the encouragement and protection of trade and commerce in the production, manufacture, sale and distribution of Pennsylvania grade crude oil and its products."

NATIONAL PETROLEUM NEWS

VOLUME 32 WEDNESDAY, JULY 24, 1940 NUMBER 30

'Gas' Demand During August Will Hit Peak

N. P. N. News Bureau

WASHINGTON, July 22.—Soaring with the summer heat, domestic demand for motor fuel in August will reach the record high total of 56,200,000 bbls., about 4.5% over the abnormally high demand for August, 1939, according to forecast by U. S. Bureau of Mines.

"General trend in domestic motor fuel consumption for third quarter indicates an increase of at least 6.5% over last year," the bureau reported, and adds, "the percentage increase of refinery sales by months, however, may be very irregular."

Trend of refinery operations indicates the continuance of relatively low gasoline yield and higher distillate yields until a better balance between stocks and demand is attained, report said.

Reduced July Sales

August demand will probably not be comparable with actual consumption for individual

(Continued on Page 24)

Illinois Production Down 23,350 Barrels

N. P. N. News Bureau

NEW YORK, July 23.—Illinois daily average crude oil production at 460,500 bbls. in the week ended July 20 was down 25,350 bbls. for the week and 56,550 bbls. from the peak output of 517,050 bbls. reached late in June, report of the American Petroleum Institute today showed.

The U. S. total output averaged 3,580,350 bbls. daily last week, up 19,600 bbls. from the previous week. Texas production rose 24,700 bbls. and Kansas was up 11,750 bbls. Crude oil imports averaged 149,000 bbls. daily, up 39,850 bbls. from week ended July 13. See statistical section for detailed figures.

Reports from the new Illinois fields indicate that Devonian production, which spurted the total output to a record high a few weeks ago, have slumped sharply.

He Says 'No'

Gov. Phillips of Oklahoma

Texas Calls Hearing On Proration, Aug. 1

AUSTIN, Tex., July 23.—The door is open for any oil company executive to testify at the August 1 hearing called by the Texas Railroad Commission to consider revision of allowable schedules.

After wiring a specific invitation to Harry F. Sinclair, board chairman of Consolidated Oil Corp., Chairman Smith said:

"We'll be glad to hear anyone who has any views to express on the situation."

However, no other specific invitations have been sent. "Sinclair said he wanted to meet us and if he thinks he knows what the trouble is down here, we will be mighty glad to have him explain it," Chairman Smith added. He said that Mr. Sinclair would be asked to discuss market conditions which prompted recent crude price reductions by Sinclair interests in North Texas.

Chairman Smith said: "We have had many telegrams from operators that they want something done immediately." Mr. Smith said that Governor Phillips' refusal to call compact meeting "apparently means he doesn't think it's necessary to curtail production at this time and does not think the price cut will spread."

For a while, Chairman Smith hinted that "immediate action" would be taken, but today he gave assurance that "no emergency orders are contemplated prior to the state-wide proration hearing on Aug. 1."

Effect of Texas Cut Weighed by Industry

N. P. N. News Bureau

TULSA, July 22.—Crude price cuts—posted so far by only one major company—in North Central Texas and Mexia (Texas) have prompted oil regulatory officials to study the crude production situation in their states as well as the entire southwestern picture.

There was disagreement as to danger of the price cuts spreading. Question seems to be whether they were just pimples resulting from local conditions or the first signs of an unhealthy condition existing throughout the entire southwest—if not the entire American oil industry.

Two leading crude-purchasing companies differed sharply on possibility of the North Texas crude cuts affecting Oklahoma and Kansas.

Governor Phillips of Oklahoma, chairman of the Interstate Oil Compact Commission, returned late last week from the Democratic National Convention at Chicago and checked over the crude situation. He concluded that there was no need for an emergency meeting of the compact commission, such as preceded the oil field shutdowns last summer.

Two members of the Texas Railroad Commission, Chairman Lon Smith and G. A. Sadler, had wired the compact chairman early last week urging a special compact meeting to consider shutting in southwestern oil fields.

Turned down by Compact Chairman Phillips, the Texas commissioners have called a special proration meeting for Texas at Austin, Aug. 1.

Meanwhile, Continental Oil Co. has wired Gov. Phillips saying that it doesn't expect North Texas crude cut to affect Oklahoma or Kansas situations.

Sinclair Makes Statement

Supporting the Texas officials' view that it was not a "localized condition," was Harry F. Sinclair, board chairman of Consolidated Oil Corp., parent company of Sinclair-Prairie Oil Marketing Co. which is the one major company so far to reduce its crude prices in any area.

"The fundamental causes for this situation," said Mr. Sinclair in a telegram (full text on Page 14) to D. H. Bolin, president of North Texas Oil & Gas Assn., "go far beyond North Texas and beyond any power of correction that you or I can apply locally."

Shutdowns are not the answer, he said, nor "retaliatory and illegal" reductions of allowables in isolated cases.

Cites Refiners' Plight

"As to the crude price standing alone as one factor in the situation," he continued, "in my opinion a dollar is not enough for a barrel of crude oil. The price should be higher, but by no kind of artificial restriction or regulation can manufacturers continue indefinitely to pay more for raw material than they receive from the products made therefrom."

This recalled a somewhat similar statement by Mr. Sin-

Conoco's Wire Says No Price Cuts Seen In Oklahoma, Kansas

N. P. N. News Bureau

TULSA, July 23.—Taking issue with the view that there is danger of a spread of conditions in North Texas which led crude to price reductions by several purchasers, Continental Oil Co., through its vice president, J. G. Dyer, has wired Gov. Phillips of Oklahoma, as follows:

"For your consideration as chairman of Interstate Oil Compact Commission and as Governor of Oklahoma, we wish to advise we do not consider the actions of certain companies in reducing crude oil price in certain areas of Texas should have any effect on the price or allowable situations in Oklahoma or Kansas.

"Continental Oil Company needs the oil it is now purchasing in those 2 states, and likewise 5000 to 7000 barrels per day more than is now available from its connections under present proration restrictions."

clair in June, 1939, when the Sinclair company advanced its tankwagon gasoline prices by 0.5c in the 42 states in which it operates, at the same time explaining to the public in advertisements that "price of products must go up or the price of raw materials must go down." When the tankwagon advance failed to hold generally, Sinclair-Prairie on Aug. 10, 1939 reduced its crude prices throughout the Mid-Continent. This was followed by shutdowns of southwestern Oil fields for approximately 15 days, after which crude prices were restored.

Now, Mr. Sinclair urges a "searching disclosure of the real causes of our troubles—facts, not theories."

Study Way of Raising Price

He suggested also that there "might be some helpful discussion of the influences which prevent the average refiner from getting prices for his product that would enable him to pay a reasonable price for crude."

Texas commission has invited Mr. Sinclair to its Aug. 1 proration hearing.

Prices Cut 4c to 28c

The crude price cut in North Texas was initiated July 16 by Panhandle Refining Co., followed later by Sinclair-Prairie Oil Marketing Co. Both companies posted flat prices of 75c a bbl. for all gravity crudes in the North Central Texas area. Their price schedules had been based on gravity scale, ranging from 79c for below 29 to $1.03 for 40 gravity and above. Reductions ranged from 4c to 28c. Purchases of the two companies total about 32,000 bbls. daily.

Texas commission issued a special order revising downward by 2240 bbls. daily the allowable production in the Walnut Bend (North Texas) field, in which Sinclair-Prairie is an active producer and purchaser of crude.

Oklahoma Opposes Shutdowns

After surveying Oklahoma's part in the Southwest's producing picture, Oklahoma Corporation Commissioner Bond and Conservation Officer Armstrong took definite stands against proposal from Texas for a shutdown of oil wells.

"We are operating on a firm, stable foundation here in Oklahoma and if there should be any necessity for preventing waste we can curtail production a little and meet the situation without any general shutdown," the Oklahoma commissioner stated.

The Texas situation was described by Oklahoma's conservation officer as "a purely localized condition." The whole matter will be discussed thoroughly at the Oklahoma Corporation Commission's July 26 proration hearing at Oklahoma City, it was announced. At that time "in the interests of preventing any possible overproduction and waste, we should canvas the situation and make our positions in Oklahoma clear," Mr. Armstrong added.

Kansas Doesn't Fear Cut

Governor Ratner of Kansas conferred with his state's oil regulatory commission and his oil advisory committee and issued a statement that there was "no reason whatsoever" why the North Texas crude price cut should extend to Kansas.

Louisiana Conservation Commission announced at the close of its first statewide proration hearing July 19 that recommendations for a 10% cut in production in view of the over-all production picture and marketing conditions in the Southwest would be considered in writing its August proration order. Ten % cut was suggested by Standard Oil Co. of Louisiana, which offered to prorate its Louisiana crude purchases by 11.47% or by about 4000 bbls. daily. The Texas Company requested increased production allowables.

'Not as Bad as Last Year'

Observers pointed to disappointing exports of refined products and other factors that had contributed to current "unsettled and unprofitable" refinery prices.

"But the crude oil situation isn't half as serious now as it was at the time Sinclair cut prices a year ago," one crude purchaser said. There is little "below-the-market" oil, weak spots in the crude picture are limited to certain areas south of Oklahoma's border and in Louisiana and Arkansas, and Illinois production is not on the ascendency as it was a year ago, he said.

In East Texas, one of the state's "weak spots," market outlets were obtained for production from all but 35 of the 133 "orphaned" wells. The reported 25,000 bbls. daily "excess" of East Texas oil over and above actual demand continued to be a disturbing factor, it was said. But this production was said to be finding "reluctant market outlets."

Sale of Cargoes Helps Gulf

"Excessive" crude stocks on the Texas Gulf coast were said to have been relieved of slightly late last week as result of a reported sale of 2, possibly 3 cargoes of this oil. Storage has been obtained for current production in this area that had been described as "distress."

"And while we are discussing this, we can't lose sight of the fact that tanker rates are dropping and Mid-Continent producers may eventually obtain a part of Illinois' market she may be unable to supply," one producer reminded.

Sinclair Wires His Views To North Texas Producers

N. P. N. News Bureau

NEW YORK, July 20.—Following its text of telegram which Harry F. Sinclair, board chairman of Consolidated Oil Corp., parent company of the Sinclair-Prairie Oil Marketing Co. which reduced its prices for North Texas and Mexia crudes, sent to President Bolin of North Texas Oil & Gas Assn.:

"I agree with you as to the seriousness of the situation with which you and all of us are faced and I also am ready to take serious measures to remedy it. As to the price reduction recently posted in your area, we met competition by following postings previously made by others. The fundamental causes for this situation go far beyond North Texas and beyond any power of correction that you or we can apply locally. I am sure, however, that we shall never correct the situation until the facts are publicly disclosed and frankly faced. Shutdowns of production are not the remedy. Retaliatory and illegal reductions of allowables in isolated cases can have no beneficial effect on our problems.

"As to the crude price standing alone as one factor in the situation, in my opinion a dollar is not enough for a barrel of crude oil, the price should be higher, but by no kind of artificial restriction or regulation can manufacturers continue indefinitely to pay more for raw material than they receive from the products made therefrom.

"The newspapers state that early meetings of the Interstate Compact Commission and the Railroad Commission are being sought for the purpose of taking measures to meet the existing situation. I am heartily in favor of this step and shall seek to be heard in such meetings. But when held there should be a searching disclosure of the real causes of our troubles — facts not theories. This discussion should deal with the effect of production in unprorated areas and with foreign imports. The industry is being subjected to false and misleading propaganda concerning the importation of foreign oil. The discussion should not be concerned merely with how much or for how long prorated states shall cut back. There might also be some helpful discussion of the influences that prevent the average refiner from getting prices for his product that would enable him to pay a reasonable price for crude. Such a discussion would be helpful to all of us in devising remedies for which we are seeking just as earnestly as you are."

Options Taken On Huge Batch Of Lube Stock

CLEVELAND, July 23.—Several large-company buyers have under option approximately 120,000 bbls. of Pennsylvania bright stock, which, if option is exercised, will reduce refiners' inventories approximately 25%, according to reports from western Pennsylvania.

Options already have been taken up on what were described by some observers as "smaller quantities" (10,000 bbls. or so), while options on some of the larger quantities extend to July 25. Details regarding prices involved in the large-lot transactions have not been disclosed.

"Bright stock in storage at today's prices is like having gold dollars in the bank," one informant said. "Apparently several large companies who always buy a portion of their requirements of Pennsylvania bright stock figure this is the time to step in," he added.

One large company alone is said to have under option roughly 50,000 bbls. of oil. This company operates on both Mid-Continent and Pennsylvania crude, it was said, and with Pennsylvania bright stock priced lower than Mid-Continent bright, this company will crack its heavy ends in the Mid-Continent and make up its deficiency of Mid-Continent bright stock with Pennsylvania oil.

The decline of prices reported by refiners to 12c a gal. for 25 pour test bright stock, the lowest in 19 months and an all-time low when the price of crude is considered, also touched off a flood of orders against contracts from small-lot buyers—takers of one to 10 cars, reports today indicated.

"Even the small buyer realizes the bargain he's getting at current prices," a resale agent commented.

The industry last saw 12-cent Pennsylvania bright stock in December, 1938. The posted price for top-grade Pennsylvania crude then was $1.68 a bbl. Today the top grade is posted at $2.00 a bbl.

FDR Signs Bill To Push Travel

N. P. N. News Bureau

WASHINGTON, July 22.—President Roosevelt's approval of legislation (HR 6884, Public Low 755) setting up a travel bureau in the Interior Department has given the government a green light to go ahead with its promotion of travel in the United States, according to Interior sources.

Travel promotion has been going on for some time in the National Park Service, but without the official authorization provided in the new legislation. Immediate plans call for radio programs to begin this fall encouraging travel, supplementing present distribution of literature promoting U. S. scenic attractions, and exhibits at the New York and San Francisco Fairs.

To advertise U. S. travel in South America, Interior Department is preparing a motion picture and literature in the Spanish and Portuguese languages.

Legislation signed by the President creates a new travel advisory board consisting of representatives from all travel associations, hotel associations, etc., and government departments. Board will be set up shortly by the Secretary of the Interior.

Object of the Interior Department is described as stimulating the $6,000,000,000 travel industry by "getting more American traveling and getting more friends traveling to America from other lands."

200 Additional Warships Planned

N. P. N. News Bureau

WASHINGTON, July 22.—Two hundred additional warships, virtually all of which are expected to use oil as fuel, are now on the national defense program agenda, following approval by President Roosevelt of the $4,000,000,000 two-ocean navy bill. HR 10100—PL 757. Legislation is an authorization, construction of the vessels being contingent upon congressional appropriations.

New Penn Grade Regulations To Be Released Soon

OIL CITY, July 23.—Revision of the license regulations of the Pennsylvania Grade Crude Oil Assn., which was authorized by its board of directors last month, is incorporated in a new edition being distributed to refiner members and associate jobber members this week, it was announced here today.

Federal Power Commission May Step In To Control Production of Natural Gas

N. P. N. News Bureau

WASHINGTON, July 22.—A warning that maintenance of unreasonable prices might cause the Federal Power Commission to consider taking jurisdiction over natural gas producing or gathering companies, or ask Congress to broaden the natural gas act, appears in the formal opinion entered in docket (G U 143) involving a contract of Columbian Fuel Corporation for sale of natural gas to Warfield Natural Gas Company.

"Further experience with the administration of the natural gas act may reveal that the initial sales of large quantities of natural gas which eventually flows in interstate commerce are by producing or gathering companies which, through affiliation, field agreement or dominant position in a field, are able to maintain an unreasonable price despite appearance of competition," the FPC stated.

"Under such circumstances the Commission will decide whether it can assume jurisdiction over arbitrary field prices under the present act or should report the fact to Congress with recommendations for such broadening of the act and provision of additional machinery as may appear necessary to close this gap in effective regulation of the natural gas industry.

In a split decision, Commissioner J. W. Scott dissenting, the FPC in precedent-making decision indicated in the Columbian case that it has no intention, at present, of taking action raising the possibility of indirect federal oil control via the natural gas act. Columbian case was dismissed for want of jurisdiction.

WASHINGTON, July 22.—Interstate Commerce Commission today tentatively valued owned and used common carrier properties of the Bell General Transit Corp. at $437,131 as of Dec. 31, 1938. Company owns and operates a trunk line located in Texas used for transportation of crude oil.

Octane Rise Charted By Bureau of Mines

WASHINGTON, July 22—Octane values for third-grade, "regular" and premium gasolines, was greater during winter of 1939-40 than during a like period in 1938-39, according to the Co-operative Fuel Research Motor-Gasoline Survey, compiled by the U. S. Bureau of Mines.

Spread of the octane number for third-grade gasoline, in the 1939-40 period, showed that the low of 90% of the samples in the areas studied was about 2 octane numbers higher, while the top of the range was 3 octane numbers higher, giving a spread of 1 octane number greater than in 1938-39.

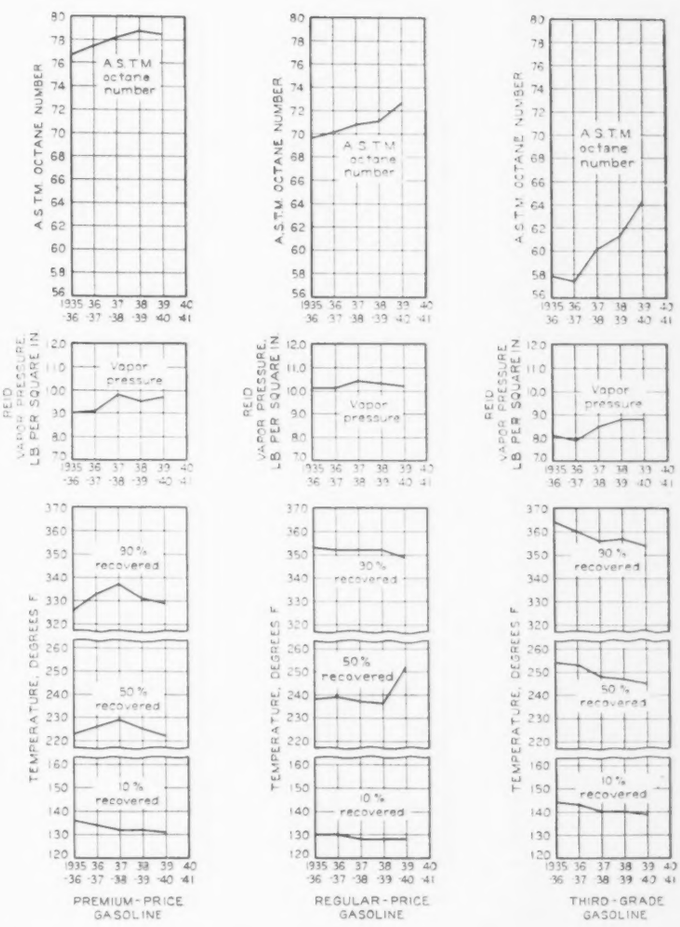
Spread of the octane number for 90% of the items in the "regular"-price grade for 1939-40, is greater by 2.2 numbers than for 1938-39, the low limit of the range being 1.1, and the high limit being 3.3 numbers above those of the previous year.

Premium Slightly Higher

In the premium grade, both the low and high ranges of 90% of the samples were slightly higher than in 1938-39, but the spread between them was slightly less.

This octane report covered 21 cities, from Boston and New York, on the East Coast, to Seattle and Los Angeles on the West Coast. The report presents analytical data for 2033 samples, representing the products of approximately 80 com-

Winter Gasolines, 1936 to 1940, Analyzed



These charts show characteristics of gasolines, sampled during the winters of 1936 through 1940 in CFR Committee-Bureau of Mines surveys. Basic data for the figures are the average values at the bottom of tables, such as those for winter of 1939-40

on following page

panies, which, as in previous surveys, included both large and small suppliers.

In addition, the Pacific Coast was represented by data that were averaged by the Pacific Coast Technical Group before being submitted and were published exactly as they were received.

Divided Into 3 Groups

The data were divided into 3 groups of samples of regular-price, premium-price, and third-grade gasolines, and each group averaged separately. All octane numbers are A.S.T.M.

Range of 90% of the third-grades samples in 1939-40 was 55.6 to 71.6 octanes, compared with 51.5 to 70.5 octanes, in the 1938-39 period.

Range of 90% of the third-grade samples in 1939-40 was 53.4 to 73.5 octanes, compared with a range of 51.5 to 70.5 octanes for a like period in 1938-39.

Ninety percent of the "regular" grade samples, ranged from 70.5 to 75.7 octanes in 1939-40, compared with a range of 69.4 to 72.5 octanes in the same period in 1938-39.

In the premium grades, 90% of the samples in 1939-40 ranged from 76.4 to 81.5 octanes, compared with 75.9 to 81.3 octanes in the 1938-39 period.

St. Louis Is Highest

Highest octane rating for any sample of third-grade gasoline in the 1939-40 period was St. Louis with 71.6 and the lowest was the Middle Rocky Mountain area with 55.6.

Highest octane rating for a "regular" gasoline, in 1939-40 period, was 74.8 at Pittsburgh, and the lowest was 71.5 at San Francisco.

In the premium grades, highest octane rating, in the 1939-40 period, was 81.3 at Los Angeles, and the lowest was 77.2 in the North Rocky Mountain area.

In the 1939-40 period, the average of all third-grade gasolines, tested for the country as a whole, was 64.2 octane; average of all "regular" gasolines was 77.2 octane; and average for all premium gasolines was 78.5 octane.

Vapor Pressure Ranges

Limits of ranges of vapor pressures, with 90% of the items of regular-price, premium-price, and third-grade gasolines included, was approximately the same as for the corresponding groups during the winter of 1938-39, although the spread for the third-grade gasolines was slightly wider than for the previous winter.

The limits of the temperatures ranges in the distillation for the regular and premium-price gasolines were very much like those of the previous winter, states the report, although the spread is slightly less. The third-grade gasolines had a slightly narrower spread than for the previous winter, and the limits of the range were slightly lower.

Table 1. Regular Grade Gasoline

District	A.P.I. Gravity	Sulfur %	Reid Vapor Press. lb.	A.S.T.M. Octane Number	Distillation range, °F. — Percent recovered — I.B.P.	10	50	90	End point
Boston	62.0	0.061	10.7	73.8	87	128	235	346	398
New York	62.4	.049	10.5	74.1	88	126	234	348	397
Washington, D. C.	62.2	.061	10.6	74.0	88	128	235	348	398
Pittsburgh	62.8	.059	10.1	74.8	85	126	232	343	398
Cleveland	62.4	.051	10.1	73.6	89	127	231	346	399
Detroit	62.9	.06	10.7	73.5	86	123	218	341	398
Atlanta	61.6	.056	9.1	73.5	92	133	234	336	387
Chicago	64.6	.05	11.7	72.5	87	121	222	350	399
New Orleans	61.5	.067	9.3	73.0	90	133	236	341	397
Memphis	62.3	.058	10.2	74.2	89	131	232	341	395
St. Louis	63.5	.063	11.1	71.6	86	124	231	356	404
Minneapolis	65.1	.06	11.8	72.6	86	119	224	353	401
Omaha	64.8	.04	11.2	71.8	86	123	228	352	401
Tulsa	63.3	.039	10.3	71.7	88	129	236	355	401
Texas	60.9	.062	9.6	72.5	91	135	246	352	398
South Rocky Mt.	60.7	.175	9.0	72.2	93	129	242	353	398
Middle Rocky Mt.	62.5	.048	10.8	71.7	84	124	238	362	404
North Rocky Mt.	63.5	.079	10.5	71.7	88	126	241	357	394
Seattle	60.9	.22	9.9	71.8	92	128	240	347	395
Los Angeles	59.9	.191	8.7	72.3	89	133	246	351	393
San Francisco	59.7	.189	8.7	71.5	93	137	246	350	395
Average	62.4	.053	10.2	72.7	88	128	252	349	398

Table 2. Premium Gasoline

District	A.P.I. Gravity	Sulfur %	Reid Vapor Press. lb.	A.S.T.M. Octane Number	Distillation range, °F. — Percent recovered — I.B.P.	10	50	90	End point
Boston	62.8	0.068	10.4	80.1	90	131	214	330	384
New York	63.6	.047	10.3	80.7	89	129	217	314	377
Washington, D. C.	61.6	.063	10.3	79.9	90	131	219	326	380
Pittsburgh	62.7	.047	9.4	79.8	89	131	218	317	381
Cleveland	61.8	.063	10.5	78.5	89	127	224	341	397
Detroit	63.4	.055	10.8	79.0	86	122	221	346	401
Atlanta	61.0	.052	8.0	79.1	97	140	203	321	383
Chicago	64.7	.055	11.6	79.1	86	118	216	345	396
New Orleans	63.0	.053	9.2	80.2	94	137	223	318	383
Memphis	63.2	....	9.9	79.6	96	138	222	319	386
St. Louis	63.0	.071	10.9	77.7	88	142	226	350	400
Minneapolis	65.4	.032	10.7	78.1	89	123	209	335	397
Omaha	64.8	.043	10.9	78.1	88	121	215	332	384
Tulsa	63.8	.058	10.7	78.5	89	127	223	341	394
Texas	61.9	.06	8.7	79.2	95	138	232	332	384
South Rocky Mt.	61.8	.069	8.5	78.3	93	134	230	324	374
Middle Rocky Mt.	63.7	.045	9.8	78.0	92	130	225	343	393
North Rocky Mt.	63.7	.025	8.8	77.2	96	136	222	332	386
Seattle	62.8	.04	9.0	80.8	93	132	223	312	371
Los Angeles	61.3	.049	7.6	81.3	94	141	227	316	364
San Francisco	61.1	.038	8.0	80.0	96	142	230	322	374
Average	62.5	.052	9.7	78.5	91	131	222	329	385

Table 3. Third Grade Gasoline

District	A.P.I. Gravity	Sulfur %	Reid Vapor Press. lb.	A.S.T.M. Octane Number	Distillation range, °F. — Percent recovered — I.B.P.	10	50	90	End point
Boston	61.6	....	9.3	65.1	92	142	242	341	393
New York	60.7	0.066	8.6	69.3	94	139	233	333	385
Washington, D. C.	61.4	.056	9.2	67.5	93	135	243	346	391
Pittsburgh	62.1	.057	8.9	70.3	91	131	236	341	398
Cleveland	62.9	.054	9.1	61.4	95	141	232	335	389
Detroit	64.2	.057	9.7	66.4	90	133	232	338	391
Atlanta	61.4	.034	8.3	68.2	95	137	241	340	389
Chicago	63.2	.036	10.3	64.0	91	135	239	355	401
New Orleans	61.3	....	8.3	66.0	101	145	237	327	389
Memphis	61.3	.054	9.5	69.9	90	134	245	343	387
St. Louis	63.5	.063	11.1	71.6	86	124	231	356	404
Minneapolis	62.7	....	9.2	65.5	91	138	249	365	415
Omaha	62.6	.025	9.3	65.1	92	138	247	357	405
Tulsa	62.5	.023	8.9	59.2	93	140	237	358	407
Texas	61.2	.053	8.5	61.5	98	147	249	347	397
South Rocky Mt.	59.0	.08	8.4	57.6	96	146	261	383	421
Middle Rocky Mt.	60.8	.035	8.7	55.6	86	137	253	372	415
North Rocky Mt.	61.5	.061	9.3	60.7	91	132	262	371	406
Seattle	57.5	.09	7.7	63.5	101	147	260	369	417
Los Angeles	57.6	.114	7.8	64.6	92	144	261	375	413
San Francisco	57.8	.092	8.3	63.1	94	146	262	370	414
Average	61.2	.046	8.8	64.2	93	139	245	354	402

Keep Door Open to U. S. Oil, Urges Canadian Legislator

Special to N.P.N.

OTTAWA, July 20.—That the 10% war exchange tax, imposed in the new budget on all imports into Canada, except those from British countries, was helping to create new oil monopolies and squeezing out the small oil man, was charged by Fred Hoblitzel, Toronto, member of the House of Common, in his maiden speech before the legislators. Mr. Hoblitzel said he had been 25 years in the oil business.

While this oil man and legislator did not object to the tax as such, he feared its consequences. The danger from it was the creation of a combine in the oil industry to the detriment of the public.

He also questioned the appointing of an Oil Controller, with wide powers over the industry, who had no experience in the oil business.

"A short time ago a banker got himself appointed comptroller of oil", said the Toronto member. "So far as I know, this individual has had no previous experience in the oil industry. Although he has been in office only two or three weeks, he has already drafted regulations which I have reason to fear."

Mr. Hoblitzel said he had not very much confidence in dollar-a-year men, and stated that the big oil companies had dollar-a-year men down here "on the job to protect their interest".

"It would be interesting," he asserted, to know how many orders have gone indirectly to the firms whom these men represent. Presumably they are still on the payrolls of these firms."

'Independents Need U. S. Oil'

Explaining the effect of the new tax, the Toronto Liberal Member said that there were only 4 major oil companies in Canada and all the opposition which these had was that of small, independent oil companies who obtain their supplies cheaply from the U. S. The new tax meant that the importing companies are not now in as favorable a position to compete with the Canadian refineries, and that they will be more or less forced to purchase their requirements from the major companies and at the same time compete against them.

"The result," Mr. Hoblitzel said, "may be that the big companies will dictate the policy and the prices of the whole industry. As a matter of fact, I am informed that they have already made plans to do so."

Hon. R. B. Hanson, leader of the opposition, said that the government should not allow Mr. Hoblitzel to go unanswered.

Hon. J. L. Ilsley, Minister of Finance, stated that, unless something had happened, he had never heard about, there was nothing to fear with regard to the quality of services rendered by the gentlemen who had placed themselves at the disposal of the government.

THE EDITOR'S PAGE

Readers Comments and Opinions will be much Appreciated by—WARREN C. PLATT, Editor and Publisher, Penton Building, Cleveland, O.

Oil Again Debates Prices.

Some retail and tank car prices are weakening and some crude oil prices have been cut, despite the fact this is the height of our biggest consuming season for lubricating oil and gasoline.

Again the industry is in a verbal turmoil as to who and what has caused the price declines. Again our statistical and advisory mentors are looking at the entire U. S. petroleum picture and are arguing about "too much stocks" and "too much production" and for "the industry" to cut back.

But the oil industry price picture is not that simple and it never has been. Our prices are affected by many factors and many minds, by companies which have strong price policies and by companies that are just learning about price policies. Our prices are affected by a widely varying quality and amount per well of crude oil; by its location close to or far away from large consuming centers; by continuing decreasing costs of transportation; by better refining methods; by further decline in transportation costs of refinery products; by refinery sales policies; by the type of contracts to marketers and large consumers. One could enumerate many more things that concern our prices both up and down.

We have long contended that those who would simplify the price problem, by saying it is due to the "law of supply and demand" and try and interpret the effect of that law only from the nation's total production and stock figures, and who ascribe our ills to "the market", are doing the industry great harm. Such price philosophy is but turning the price problem over to "the other fellow" while each oil man sits back and waits for the overall picture to be cured.

This "let George do it" procedure only serves to get the industry deeper into the mire of unprofitable prices.

What the industry needs is to see as nearly all of the factors that affect prices as clearly as possible. And then it must seem that in the last analysis, price is a personal matter, the responsibility of an individual or group of individuals who decide at what price they will endeavor to sell their property—petroleum and its products.

The oil industry has been moving steadily toward the adoption of this point of view through establishing in practically all the larger companies of more and more a personal responsibility for profit and loss for each executive and manager and salesmen and others as far down the line as reasonable accounting can set up costs for individual operations. When every oil man who has something to do with prices or with operating costs, knows that he is being held to strict account for getting a profit from his hour-to-hour and day-to-day decisions, and when he knows that he will be punished, by reduction of his compensation or even removal from the payroll, for making a loss, then will this oil industry at last be on a sound price basis. That does not mean that prices will be profitable for all, for they will not. They can only be profitable for the more efficient. The less efficient will have to pay the fatal penalty in this land of competition.

One important reason that oil companies have been making the profits they have of late, is because they have had in operation for considerable time, systems of management that require personal responsibility for losses as well as for profits. These systems have cut a lot of "fat" out of costs as competition has gotten keener.

However, as we have commented in the past, many oil men do not yet seem to realize that price is not controlled impersonally, by this much talked of "law of supply and demand" and the exact number of barrels that "the industry" has in storage. Many companies do not yet understand that price is to a very considerable extent controlled by individuals, their courageoues thinking and their skill and ability in "asking" and "selling" good prices. We are not talking about the nonsensical "bull" talk that some sellers put out with their alleged "prices." These fool no one but themselves while they injure many with their shortsightedness. But we are talking about intelligent appraisal of the customers, the value of the product to those customers and skillful and courageous presentation of all these sales facts in support of a fair and profitable price.

The industry will quit selling "at", or unfortunately in so many cases at "under the market", when it finally realizes that price is personal, to a very large extent, personal to each individual, and is not altogether a matter of "stocks" and "production"" or of that mythical "the market."

State Compact should Investigate Price POLICIES

It is undoubtedly most fortunate for the whole oil industry, fortunate even for the men right down to the gasoline pumps, that the Oil State Compact and the conservation measures thereunder, is as well developed as it is. Here is a truly democratc forum where all oil men can come, debate all matters pertaining to oil, yes even in regard to price, and do it without fear—at least so far—of prosecution for alleged anti-trust law violation.

And it also is fortunate for oil men that these oil states that constitute the Compact have officers who are so devoted to the idea of states' rights, when their party chief at Washington is so strongly in favor of totalitarian power from Washington.

The ardor with which state officials have fought for the State Compact and the intelligence with which they have operated under it, has undoubtedly prevented Messrs. Roosevelt and Ickes from their attempts to Hitlerize the oil industry as per their present bill in Congress.

Governor Phillips of Oklahoma, chairman of the State Compact Commission, is considering calling a meeting of the Commission to study the present dislocation of prices in the oil industry, particularly as reflected in price reductions of some Mid-Continent crude oil. The more the oil men and the Commissioners can make this a thorough study of the situation, the less likelihood there is of Roosevelt and Ickes exercising some war power over oil, in these ticklish days.

We would like to see the Compact Commission begin a rather long range study of oil prices and try and find out many of the facts that affect them, and not just stop with the statement of statisticians such as has been made to it many times that there is "too much oil." NPN showed in a series of editorials and articles this last winter that the statisticians were guilty of presenting an entirely erroneous picture of "excess stocks," that they said were "pressing on the market."

In the first place, these stocks were not "on the market" because they were still in the tanks of the refining departments and could only be turned over to the sales departments for placement "on the market" by order of the top executives who presumably are smart men, at least they have been so far.

In the second place, the "excess" of these stocks was above a figure which represented bare working stocks, and anything less would be an actual and most deplorable shortage.

Then who says that anything more than the most needed of supply is an "excess" that is "breaking prices"? Certainly many of the critics of this "excess" can hardly qualify as competent witnesses.

The Oil State Compact Commission, an outstanding institution of industrial and political true democracy, can do all much good by delving deeply and sanely into oil industry price policies today. Whether it can help prices or not remains to be seen. At all events such a probing will give all a cleaner picture of our prices.

Our Oil Boomlet Deflated

The oil industry's present price troubles may possibly be largely ascribed to the fact that the the industry has had its own little war boom, and the boom is now over, at least this phase of it.

Last August when war began in earnest abroad, all governments, Allied, Nazi, Fascist and Stalin, rushed purchases for all the petroleum products they could buy.

Purchases were made to the limit of tankers to carry them. Lube oil prices skyrocketed, especially the "asking" prices more than doubled. Gasolines on the Gulf went up 30%. Then we had the coldest winter in years which, with the shortage of tankers due to the war, hoisted fuel prices some more.

Hitler's and Stalin's advance through Europe wiped out one American oil customer after another. Then Italy entered the war and got herself behind England's embargo and finally France fell. There are only England and a few small customers abroad and England is getting most of her requirements from foreign fields, including Venezuela.

Our oil war boom blew up about as quickly as it started so that today prices are down to where they were last summer.

Question—How much of our present headache comes from our war spree?

The turn of the war against the Allies brings up another question of great importance to the American oil industry. That is where is Venezuela's vast production going to go in the future?

At present nearly a half million barrels a day of it is being refined on two Dutch Islands in the West Indies just off the Venezuelan coast. So far England has kept control of those islands with these highly precious refineries.

Will these Dutch islands, with these refineries, go under German control?

What will Venezuela do if her royalties from the sale of her crude oil are materially reduced?

Most South American countries, and Venezuela in particular, are quite "realistic' as they say these days, when one wishes to describe people as being hard boiled on money matters. The Venezuelan government and many of its people have profited much from the sale of crude oil all these years.

How graciously and generously will Venezuela forego any of that income if the United States or England does not want its oil sold to the Nazis, providing they could get the oil there?

If England's blockade of Nazidom continues successful and if England cannot take all of Venezuela's oil, what affect will that have on the American oil industry?

What is Secretary of State Hull going to use for "appeasement" to Venezuela when he pursues his role of a "good neighbor" a bit further in his present negotiations for a defense league of all the Americas? The American oil industry?

Truly the oil industry needs a forum where its own interests can be discussed fully and frankly and the State Oil Compact Commission is that place and right now is the time.

Oil Leaders up from The Bottom

Now let us turn to human beings in the oil industry who have just been crowned by high positions for their hard work all these years. It is a far more interesting subject than war, and it lends more cheer to our lives these days.

Despite all the shouts of "monopoly" and "bigness" the outstanding fact about this oil industry has been that our companies big and little have been manned almost entirely by men who came up from the ranks. Where a few of them had some helpful family connections, they still had to start at the bottom with pick, sledge or sample case and earn their way up. You had to produce or you did not run.

Typical of this freedom for hard work and recognition of work well done, was the elevation the other week to the presidency of the Standard of California of Harry D. Collier. His start with the company was as a salesman and a salesman he has been ever since. Even when elected he was in Japan selling oil and looking after the company's now large foreign interests.

Mr. Collier follows in the steps of other self-made Standard Oil men, Mr. Berg, who died recently and who started at the bottom, and his predecessor who made the company what it is today, Kenneth Kingsbury, a particularly powerful individual who made his own way.

A few weeks ago Frank W. Abrams, one-time draftsman in the company's Eagle Works, was advanced to the "big board" of the Standard Oil Co. (New Jersey), and Chester F. Smith, one time laboratory man at Bayonne, succeeded him as president of the operating company The Standard Oil Co. of New Jersey (Delaware Corporation.)

Over in the Sinclair organization, Henry I. Phillips, one-time cub lawyer, was moved from Tulsa to New York in charge of all Sinclair's production and pipeline activities, with the title of president of the Sinclair Prairie Oil Co.

And there are more of them who have been promoted to better jobs the past few weeks. Each has made himself, his job and all together they are making and are the oil industry of today.

'Americanism in Business' is Function Of Trade Association, Says Donahue

PITTSBURGH, July 22.—Emphasizing the important role that petroleum associations play in modern business, and that such organization is "Americanism in business," John H. Donahue, president of Pennsylvania Petroleum Dealers Assn., this week gave NATIONAL PETROLEUM NEWS his opinions on the function of petroleum associations.

Mr. Donahue's full statement follows:

"The principles of democracy function in free enterprise and initiative of private business and industry—this is the condensed version of our American government. A trade association works constantly towards holding this simple formula intact. The plan is educational and the entire program one of organization as opposed to false theories and arbitrary dictates, which I believe the Department of Justice misinterpreted.

"Fair trade practices are not imposed on but demanded by the 'gas' dealers. Just as in any human endeavor, business requires a leadership which is unselfish and conscious of the dealers' interest as it affects them and the public.

"If we are to emerge from this depression which has become a chronic ailment, the small independent businesses should be nursed back to health. That is the only logical attack we can make on the evils of our social and economic life. Solve this, and your unemployment will automatically take care of itself. Discounts, cut prices and all manner of underhand dealings are a menace to American business—gnawing at the vitals of economic adjustments and empoyment.

"If the farmer is the backbone of the nation, then the independent business man should be considered the nerve center of a nation's commercial existence. Stabilization of the market for gasoline dealers has been a step in the right direction.

"With the establishment of a trade association and its aggressive actions ,the destructive abnormalities against good business practises must be brought to the attention of the public. Almost without exception, real progress is attained only when a group band together to found an organization of its own which will function for the interest of all its members—not for their own satisfaction alone, but also keeping the welfare of the public in mind.

"A trade association has no prerogatives. It does not exercise its duties by monopolistic or dictatorial powers. It is a vital force—a symbol—formed and created by dealers whose will directs every step of administrative powers.

"Trade associations are certainly not recent innovations or plan of our modern world. Centuries ago tradesmen, small businesses and various groups formed guilds for the same high purposes that inspires organization work today. One of its prime objectives is to combat and eventually to eliminate unbusiness-like practises and unfair competition.

Results? Fair profits for the dealer, better wages for the attendants, decent standard of living for all and increased employment. Are these objectives worth fighting for? Organization is the indestructible foundation on which these are built. Unanimously the cry goes up—organize, organize, organize! This is Americanism in business."

Iowa's Republicans Against Tax Hikes

DES MOINES, July 20. — When Iowa's Republican State Convention assembled here July 12, to adopt its 1940 campaign platform, members "got right down to cases and went on record as follows:

"Against any increase in the rate of the state gasoline tax; against any mis-use of diversion of gasoline taxes and highway revenues; and for improved reciprocity with other states and the elimination of state barriers.

"All of which is good news to the Iowa highway user and taxpayer," comments the Iowa Petroleum Industries Committee.

OIL TAX NEWS

June Collections of Federal 'Gas' Tax Break Record for Any Single Month

N. P. N. News Bureau

WASHINGTON, July 22. — Federal gasoline tax collections for June amounted to $21,085,903, the greatest amount collected in any June since the passage of Federal gasoline taxes, and this sum brings the six-months total to $55,229,009, more than 11% above January-June 1939 collections, $49,355,397.

It is pointed out at the Internal Revenue Bureau that the defense tax probably had very little to do with the sharp rise in June, since collections in June are assessed in May, and the defense tax was not passed until late in June. Any increase caused by the tax may show up in the July collections, assessed in June when the defense tax was under discussion.

Collections for fiscal year which closes June 30, 1939, total $226,186,669, the largest sum ever collected during a fiscal year and passing by $19,167,924 the previous fiscal year record-breaking of $207,018,745.

Tax collections on transportation of oil by pipeline totaled $1,041,309 in June against $935,802 in June 1939, and lubricating oil tax yield was $2,924,594 compared with $2,493,992 for June last year.

Other tax receipts of interest compare as follows:

	June		Fiscal Year	
Source of Revenue	1940	1939	1939-40	1938-39
Gasoline	$21,085,903	$17,796,086	$226,186,669	$207,018,745
Lubricating oils	2,924,594	2,493,992	31,232,589	30,496,637
Transportation of oil by pipeline	1,041,309	935,802	11,510,647	10,954,733
Automobiles and motor cycles	5,866,607	2,961,726	59,351,198	42,722,787
Automobile trucks	627,016	597,931	7,866,071	6,007,662
Automobile parts and accessories	1,622,587	661,934	10,629,993	7,935,464
Tires and inner tubes	4,168,241	3,790,507	41,555,489	34,819,208

Bulk Plant Held Not a 'Retail Store' In Federal Decision on Iowa Tax Law

N. P. N. News Bureau

CHICAGO, July 22.—Question of whether bulk plants are "retail stores" within meaning of chain-store tax laws soon may be headed toward U. S. Supreme Court for decision as a result of recent decision on Iowa chain-store tax by Federal District Judge Charles A. Dewey at Des Moines.

Filling stations were declared by the Supreme Court to come within the term "retail stores" in a chain-store tax law.

Decision was in a suit brought by Phillips Petroleum Corp. to enjoin collection of the chain tax on some of its rural bulk plants on grounds that products were sold on consignment to truck drivers who then resold to their customers.

Judge Dewey's decision went further and declared that, according to his interpretation of the Iowa chain-store tax law, bulk plants did not come under the classification of "retail stores". Law does not indicate that legislature intended to tax bulk plants. Injunction was granted.

The suit did not question the legislature's power to tax bulk plants.

Bulk plants, according to Judge Dewey's decision, are primarily distribution centers for oil products at other than retail. Delivery to farmers and industrial accounts does not constitute "retail sales" by the bulk plants themselves, since such deliveries are made on contract and the bulk plant does not maintain a sales force, he said.

An appeal of the decision by Iowa tax authorities is expected.

While state courts are not bound to follow a federal court's interpretation of state laws (unless they are declared unconstitutional), a federal court opinion carries considerable weight with the state courts.

Government Taxes 'Touching Process' According to Latin

NEW YORK, July 22.—The word "tax" comes from the Latin word "taxare", meaning to touch sharply, and is the root of the slang expression "to touch" a friend for a loan, according to American Petroleum Industries Committee, which says that one of the causes of the downfall of the Roman Empire was the softening of morale of those living "on the touches."

In the United States, the "touching process" is in crescendo. Prominent among the modern touches is the gasoline tax, which is yielding in excess of $1,000,000,000 annually. Two out of every three families in the U. S. own automobiles, and they are being "touched" by gasoline taxes an average of more than $35 annually. Since a majority of the car-owning families have incomes of less than $30 a week, the gasoline "touch" is equivalent to one whole week's income for such families.

Canada Rules on Defense Tax

Special to N.P.N.

OTTAWA, July 20. — The Canadian Commissioner of Income Tax has ruled that the 2% National Defence Tax, deducted from dividends at the source, will in the case of oil companies be charged on only 80% of dividends, 20% being permitted for depletion. This will mean a deduction at the source of a tax of 1.6 per cent, it was said.

Alabama Law Forces Stations to Charge True Posted Prices

BIRMINGHAM, Ala. — Alabama's new law prohibiting rebates, premiums or discounts on retail sales of gasoline and oil becomes effective Aug. 1. The bill, passed at the recent session of the Legislature and signed by Gov. Frank Dixon July 2, had the endorsement of Alabama Independent Service Station Association, Inc.

The law applies only to the retail service stations. Every retailer is required to post the price of his gasoline and oil in one-inch or larger letters on the pump or stand, and to charge every customer the posted price.

Retailers who sponsored the legislation feel that it will protect them against unfair competition, which they said comes largely from big tire stores giving rebates on gasoline and oil to the customer in order to get his other business.

The new law act, its sponsors explained, makes no attempt to fix prices of gasoline and oil, but simply requires the dealer to sell at the posted price, without any discounts or premiums.

Penalty for violating the law is a fine of $50 and the judge may add six months imprisonment. Each day constitutes a separate offense, the bill explains.

Cranson Heads Safety Work of California Oil Men

N. P. N. News Bureau

LOS ANGELES, July 20.—L. A. Cranson, vice-president, Honolulu Oil Co., was elected president of the California Petroleum Safety Board at its annual meeting held here, July 19. The board consists of a group of independent California oil producers who are active in the promotion of a co-operative safety education program.

Other officers elected at the meeting were: W. C. Whaley, Barnsdall Oil Co.; L. L. Aubert, Bankline Oil Co.; and A. S. Hayes, Bell and Loffland, as vice-presidents; R. W. Metcalf, Signal Oil Co., treasurer; and Paul Stanley, Barnsdall Oil Co., secretary.

California's New Oil Head Promised Industry Support

N. P. N. News Bureau

LOS ANGELES, July 20.—Indication that L. P. St. Clair, California's new oil administrator, has the confidence of all sections of the petroleum industry in this state, was seen this week when he was publicly promised support by some oil men who, in the past, have not been conspicuous for their compliance with production quotas.

Mr. St. Clair, president of the Independent Oil Producers Agency and former board chairman of Union Oil Co. of California was uanimously elected administrator of the reorganized conservation committee of California oil producers at a special meeting of the committee held July 16.

Mr. St. Clair succeeds to the position formerly held by Lawrence Vander Leck as oil umpire, but unlike Mr. Vander Leck, he will not act as chairman of the committee. This latter position was accepted by A. H. Bell of Continental Oil Co.

Title Changed

The changes in title from oil umpire to administrator and from central committee to conservation committee were adopted for the purpose of clarifying their respective functions.

Mr. St. Clair, unanimous first choice of the selection committee appointed to suggest a successor to Mr. Vander Leck, was reluctant to serve and agreed only after considerable pressure and on condition that he would receive no salary.

In addition to his responsibilities in securing compliance with the production allotments assigned by the committee, the new administrator will make a special effort to extend the markets for California crude. Mr. St. Clair has had long and wide experience, as both field man and executive in the producing and marketing departments of the industry, and has been particularly active in promoting voluntary curtailment efforts.

W. R. Wardner Jr., who has served for several years as assistant oil umpire, was named assistant administrator and office manager. He will be responsible to the committee and to the administrator for all detail work connected with the engineering, statistical and administrative departments.

Lloyd Williamson, California Star Oil Co., was elected to the allocation subcommittee, to fill the vacancy caused by the appointment of Mr. Bell as chairman of the conservation committee.

Turner Valley Crude Tightens

Special to N.P.N.

OTTAWA, July 20.—Although allowable for Turner Valley field in Alberta has recently been increased to 26,000 bbls. daily, a temporary shortage of crude for refining purposes is indicated.

Independent refiners in Saskatchewan, according to reports from Calgary, have been notified their crude requirements cannot be met from Turner Valley and they will have to look to other sources of supply.

Refineries buying Turner Valley crude have set their requirements at 31,133 barrels daily for July. With allowables set at 26,000 bbls. daily, it is obvious some refiners will have to look elsewhere for supplies. It is expected the allowable will be increased shortly to between 30,000 to 40,000 bbls. daily, but this increase cannot be made on short notice due to production problems in raising wells to their highest rates in Turner Valley history.

It is thought allowables could be increased to the above figures without seriously straining the field. Harvest requirements on the prairies and increasing demands for war purposes, especially for the aviation training, is responsible for the larger requirements, it was said.

Nebraska Well Nears Pay-Off

TULSA, July 22.—If production from Pawnee Royalty Co.'s No. 1 Bucholt well in the Falls City, Nebraska, pool holds at present levels for another 6 days, the Pawnee company will be in line to collect the $15,000 bounty offered by the state for the first commercial oil well, according to reports received here. On July 28, the well will have produced a minimum of 50 bbls. daily of oil for a period of 60 days, thus fulfilling requisites for the bounty.

Meanwhile, the discovery well in the Falls City area has been shut down. When last produced, well's output consisted of a small amount of oil and lots of water, according to reports.

Missourians Steamed Up

Missourians are steamed up about what they believe to be state's first deep commercial producing well. The well, located 28 miles east of the Falls City pool, is reported to have had a show of gas and oil from the Viola lime, reached at 2302 ft.

New tests drilled in the tri-state area of Nebraska-Iowa-Missouri indicate a fairly large area of play. Should the region develop as an oil producing area, logical movement for the crude would be up or down the Missouri River by barge. Industrial plants in the Kansas City area might be a "natural outlet" for the oil. This market, however, is supplied from eastern Kansas at present.

Grogan Plants Close

SHREVEPORT, July 20.—Operations of the three refineries, total capacity of 20,500 bbls. daily, and other properties operated by the Grogan oil interests in Texas and Louisiana have been suspended, it was announced here today.

J. W. Summers, Rush, Tex., attorney, has been appointed receiver for two Grogan companies—De Soto Pipe Line Co. and Hurricane Pet. Corp.—on behalf of the State of Texas' tax interests. Indications were that the two East Texas plants operated by the Hurricane company would not resume operations at this time. Total refining capacity was 8500 bbls. daily.

Hurricane Oil Sale Co. and the 12,000 bbl. refinery at Cedar Grove, La. of the Rodessa Oil Refg. Corp. have been closed down.

DEATHS

Howard C. Meyer

Howard C. Meyer, 53, Pittsburgh, general manager of refined oil sales and sales operations for Gulf Oil Corp., died July 21 at Greenville Hospital, Greenville, Pa., after a brief illness. Funeral services were to be held July 23.

Mr. Meyer was born in Sharpsburg, Pa. Prior to his connection with Gulf, which began in 1920, he was with the Vacuum Oil Co. Mr. Meyer was a member of the American Petroleum Institute.

He leaves his widow, Mrs. Florence Miller Meyer; two sons, Richard, and John D., of Tampa, Fla.; and a daughter, Constance.

* * *

Edward J. Vaughn

Edward J. Vaughn, 70, retired general counsel of Barnsdall Oil Co. of California, died July 16 at Los Angeles.

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Richard W. Norton

Richard W. Norton, 55, San Antonio oil man and Texas delegate to the Democratic National Convention, died of a heart attack in his hotel room at Chicago, July 17. Mr. Norton was said to be a close friend and supporter of Vice-President Garner. Mr. Norton leaves his widow and son, Robert Jr.

Oil men credit Mr. Norton with discovery of the tri-state Rodessa oil field, late in 1935. Prior to this, some oil companies are reported to have turned "thumbs down" on this area, as far as its oil prospects were concerned. He is also credited with sinking a gas well in this same area. His first oil venture was in Arkansas' Smackover field.

* * *

Einar Rygg

Einar Rygg, 41, Thornburg, Pa., advertising manager of Gulf Oil Corp., died July 19 at his home, of a heart attack. Mr. Rygg was born in Oak Park, Ill., in 1899. He was president of the Thornburg School Board and first vice-president of the Pittsburgh Advertising Club. He leaves his widow, Mrs. Lois Mullen Rygg; two children, Mary Andrea and Einar Jr.; his parents, Mr. and Mrs. A. N. Rygg and a sister, Agnes of New York. Funeral services were held July 22.

* * *

Charles J. Weber

Charles J. Weber, 61, Brooklyn, shipping master of Socony-Vacuum Oil Co., died July 16 at his home after a long illness. He leaves a widow; a daughter, Edna Weber; a son, Charles R.; a sister, Mrs. Edward Kallman; and two brothers, Otto and John Weber.

WITH THE ASSOCIATIONS

Speaks for itself

This balloon directed us to the picnic

Glen M. Daily, Oil City Quaker State Oil Refining Corp., and George G. Croft, left to right, taking care of ticket situation

William Miller, Otto Hlad, association president, and Kenneth Landon, left to right, talking it over. Messrs. Miller and Landon are vice-presidents

NPN Doffs Tie For Cleveland Picnic Of Petroleum Retailers Association

N. P. N. News Bureau

CLEVELAND, July 22. — Whenever NPN editorial men are invited to a picnic, they seldom hedge. They ask "when?" and "where?" This particular picnic was held last Wednesday at Geauga Lake Park. How many were there?

Well, we were not alone. About 25,000 attended. The occasion was the second annual Petroleum Industry Picnic, sponsored by the Cleveland Assn. of Petroleum Retailers.

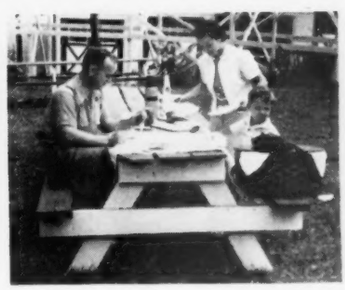
Picnic hosts were Cleveland's service station operators and employes. Guests were Cleveland's motoring public and representatives of dealers' supplying companies.

Food and drink served by the hosts, were excellent. The games were fun. The lake was cool. The day was so pleasant that we almost forgot to take pictures.

'Out For Good Time'

Our first picture was taken a few minutes after 12 noon, when we stopped for gasoline, en route to the picnic. Signs similar to the one shown on this page could have been found in almost every service station in the Greater Cleveland area. 'Gas' Men were out for a good time, and made it no secret that the motoring public was invited.

When we were still miles from Cleveland, we could see the huge Sohio balloon. We took a picture of it; but when the film was developed it was about as difficult to distinguish as a Fifth Columnist landing in Norway. Later, we snapped a close-up when the boys hauled it down for "re-gassing."



Fred Kreimer, Mrs. Kreimer and Fred Jr., "stocking up" at luncheon. We ate one of those sandwiches; and it was mighty good

'Shot' the Presidents

While on our way to the Garden Theatre, where the drinks were cached — soft drinks of course—we spotted the association's president, Otto J. Hlad, who was making plans for the evening, with his two vice-presidents, William Miller and Kenneth Landon (see picture).

Then on to better things—so we thought—as we ogled a cute bit of femininity busily engaged selling toy balloons and other knickknacks. But take a look for yourselves, as we took her picture standing between H. D. Pallister and Rudolph Cordes. Her name: Jean Gould. Her address: our secret.

A few minutes later, we "shot" M. E. Glass, president of the Texas Distributing Co., and Howart Hirt, talking with Mr. Miller.

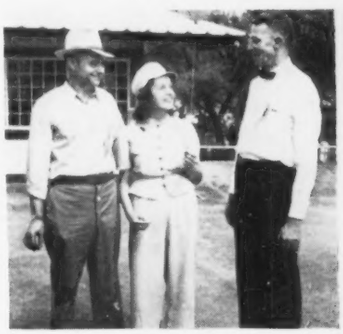
We took about 35 different pictures, the best of which are on this page.

'Why the Picnic?'

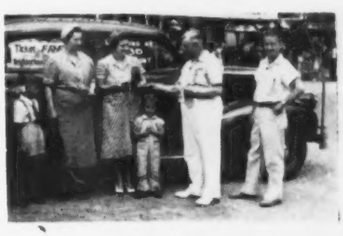
While talking with Mr. Hlad we asked him to tell us in a few words "why this picnic?" He replied: "Well, we dealers figure that the public spends a lot of money with us during the year, so we hold this annual picnic in order to give them something."

When Mr. Hlad spoke of giving them something, he was not referring just to a good time. The following list names only a few of the $2500 worth of goods given away: car radios, electrical home appliances, fog lamps, fans, wireless record players, grill guards, tires, tubes, hams, sugar, and cases of oil. All this was in addition to a 1940 master deluxe Chevrolet.

M. E. Glass, Texas Distributing Co. president, and Howard Hirt stop to chat with Vice-President Miller, who seems about to topple over



Rudolph Cordes and H. D. Pallister seem as happy to pose with comely Jean Gould as the photographer was to get her picture



It's Mr. Miller again, this time explaining when the sports would get under way, to a motorist and her family

This family is typical of the guest motorists entertained by the dealers

California 'Natural' Group Honors New Chief, Cassaday

N. P. N. News Bureau

LOS ANGELES, July 20.—Honoring its general manager, L. V. Cassaday, on the occasion of his installation as president of the California Natural Gasoline Assn., for the year 1940-41, Lomita Gasoline Co. gave a dinner to the association's board of directors and committee chairmen, July 9 at the Pacific Coast Club, Long Beach, Calif. The annual directors' meeting followed.

With 30 men in attendance, the meeting was called to order by P. S. Magruder, General Petroleum Corp., retiring president, who received unanimous expression of appreciation from those present for his administration of the association's affairs. Mr. Magruder then presented the gavel to President Cassaday who conducted the meeting.

J. B. Taylor of the Signal Oil and Gas Co. announced the program for the association's August meeting to be held at the Pacific Coast Club, Long Beach, Aug. 7. Members of the association will be taken on a tour of the newly completed Long Beach and Los Angeles Harbors at 4 o'clock in the afternoon through courtesy of the Long Beach Harbor Commission. This will be followed by the regular monthly association dinner.

Following dinner a program will be presented during which Dr. K. Korpi of the Union Oil Co. of California will present a paper titled "Natural Gasoline and Its Relation to Aviation Gasoline." The final event will be motion pictures in color made by the Vultee Aircraft Co. of actual test flights of military aircraft. Jack Bailhe, Publicity Director of the Vultee Aircraft Company will present a discussion in which American military planes will be compared with those of foreign nations; a comparison of equipment and personnel; a discussion concerning the life of planes in combat, replacement and training of personnel.

In connection with the program to be presented, Mr. Cassaday said that C.N.G.A. meetings are open to all interested parties and those desiring to attend.

P. S. Magruder hands gavel to President L. V. Cassaday

New England Dealers Unite, Seek Trade and Sign Laws

N. P. N. News Bureau

NEW YORK, July 22.—New England's new association of dealer associations, the New England Gasoline Retailers Assn., which is comprised of 35 separate dealer groups in 6 states, held its second meeting in Boston on Sunday, July 21 and formed plans for attaining its first objective: the promulgation of uniform fair trade and price sign laws in the New England states.

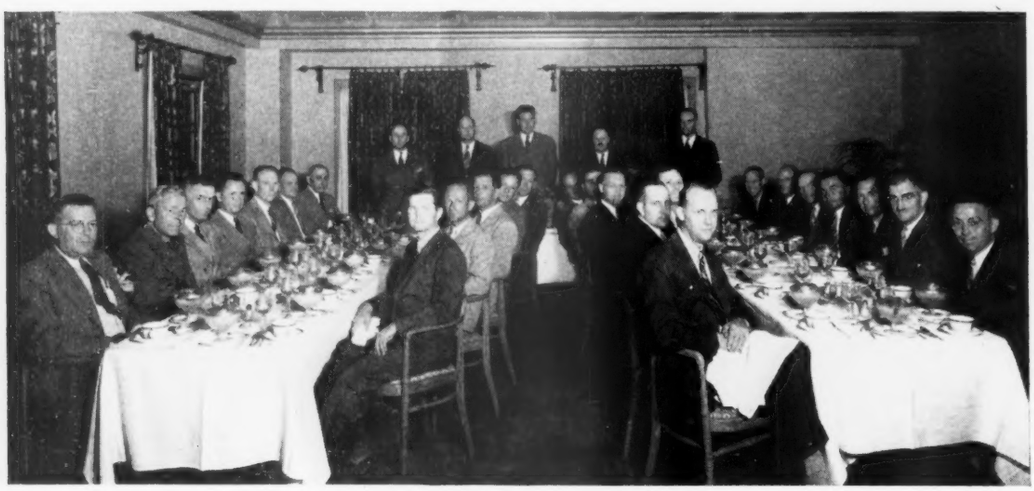
One of the first steps will be to appeal the decision of the Connecticut Supreme Court in declaring Connecticut's price sign law unconstitutional, according to Frederick H. Moore, Roxbury, Mass. executive secretary, when interviewed today by NPN over long-distance telephone.

Fair trade law amendments, "similar to the state of New Jersey's," will be sought for Connecticut, New Hampshire and Vermont. The states of Maine, Rhode Island and Massachusetts already have such amendments, Mr. Moore said. Such laws permit suppliers to specify minimum resale prices on branded products. Motor Fuel Department power to "police" service stations when suppliers market their branded products under the fair trade law. This department has made 47 arrests, according to Mr. Moore.

Peter Hooper, Roslindale, Mass., is president of the new association. Mr. Moore, the executive secretary, holds the same position in the Retail Gasoline Dealers Assn. of Massachusetts. Mr. Hooper is president of the Massachusetts association.

First vice president, representing Connecticut, is George F. Gaughan, Waterbury, Conn., and following are the other vice presidents, each representing his respective state:

M. J. Skeffington, Manchester, N. H.; John Daigle, Providence, R. I.; and C. H. Banks, Biddeford, Maine. Vice presidents for Vermont and Massachusetts have not been chosen.



Attending the dinner, given to honor California Natural Gasoline Assn.'s new president, L. V. Cassaday, were the following:

Left to right, along left outside of table—R. C. Wheeler, director, General Petroleum Corp.; O. C. Field, director, O. C. Field Gasoline Corp.; R. D. Gibbs, director, Union Oil Company of California; J. C. Burks, director, O. C. Field Gasoline Corp.; C. D. Card, director, Union Oil Company of California; F. A. E. Lowell, director, Del Rey Oil & Gas Co.; and John Rogers, director, The Cooper-Bessemer Co.

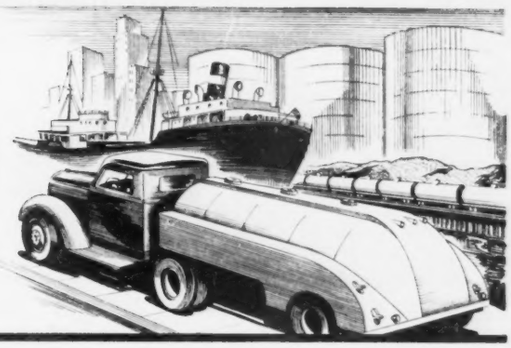
Left to right, along left inside of table—C. S. Beard, chairman, Taft Chapter, O.C.M.O.; W. A. Kirk, director, California Southern Oil Co.; H. A. Leedy, chairman, entertainment committee, Crane Company; H. M. Paulsen, director, Bankline-Norwalk Company; W. H. Kraft, director, Honolulu Oil Corp. Ltd.

Left to right, along right inside of table—G. C. McLaren, director, Standard Oil Company of California;; M. W. Kibre, chairman, technical committee, General Petroleum Corp.; J. B. Taylor, chairman, program and fall meeting committees, Signal Oil & Gas Co.; M. L. Arnold, director, Richfield Oil Corp.; F. E. Davie, director, Shell Oil Co. Inc.; and R. W. Heath, director, Signal Oil & Gas Company.

Left to right, along right outside of table—J. S. Fluor, Jr., director, Fluor Corp.; H. R. Linhoff, director, Richfield Oil Corp.; R. S. Tulin, director, shell Oil Co. Inc.; F. J. Colton, director, Tidewater Asociated Oil Co.; Harry Fiske, director, Ingersoll-Rand Co.; T. L. Taggart, director, Standard Oil Company of California and L. C. Bowsen, chairman, auditing committee, The Texas Company.

Left to right, standing rear of table—G. L. Taylor, secretary-treasurer; P. S. Magruder, director and retiring president, General Petroleum Corp.; L. V. Cassaday, president, Lomita Gasoline Company; W. C. Dayhuff, vice-president, Standard Oil Company of California, and J. H. Kunkel, chairman, publicity committee, Public Relations Counsel.

OIL TRANSPORTATION



'Dirty' Tanker Rates Drop

N. P. N. News Bureau

NEW YORK, July 23.—"Dirty" coastwise tanker rates dropped 6c this past week with last paid for 30 gravity or lighter crude and 10-19.9 gravity fuel at 19c and 21c a bbl., respectively.

Last paid "clean" rates were unchanged at 21c for gasoline, 22c for kerosine and 23c for No. 2 fuel, but owners were said to be willing to do business as much as 2c below these rates.

Two foreign-flag boats were reported fixed for dirty cargoes from California to Japan at $10.50 a ton. Another foreign-flag tanker was reported fixed for 2 trips from Gulf to Spain at $20 a ton. This compares with charters of several American-flag tankers at $11 for this run which were cancelled by Maritime Commission early last month.

Coastwise demand for tonnage was said to be at a minimum with probability that rates will decline still further before demand for heating oil takes hold in September.

ICC Calendar

Decisions

T. L. Cunningham, Spokane, Wash. (MC 83962, Sub. 1), application denied for a certificate to act as a common carrier of petroleum products between Seattle, Richmond Beach, Harbor Island, Edmands, Takoma and Spokane, Wash., and points in Idaho over irregular routes.

Hagler Truck Co., Augusta, Ga. (MC 86238, Sub. 1), application denied for a permit to act as contract carrier of petroleum products, etc., between points in Georgia and S. Car. over specified routes.

Tyson-Long Co., Herman, Nebr. (MC 3361, Sub. 1), certificate granted (upon compliance with certain conditions) to operate as a common carrier of petroleum products from refining and distributing points in Kansas to Wayne and Wakefield, Nebr., and all points on U. S. Highways 73 and 73E, between Tekamah, Nebr., and South Sioux City, Nebr. and those on U. S. Highway 73W between Lyons, Nebr. and Winnebago, Nebr. over irregular routes.

Transport Motor Express, for Wayne, Ind. (MC 1582, Sub. 2), certificate granted (upon compliance with certain conditions) to operate as a common carrier of motor oils and greases from Emlenton, Pa. to South Bend, Ind. and Chicago and Rockford, Ill. over specified routes.

Frank B. Oswald, St. Louis, Mo. (MC 101066) certificate granted (upon compliance with certain conditions) to operate as a common carrier of petroleum products from Illinois points within two miles of, and including, Centralia and Salem, to points in Missouri in St. Louis commercial zone.

Delay in Trainload Plan Blamed on Refiners

N. P. N. News Bureau

CHICAGO, July 22.—Slowness of some rail-shipping refiners in providing needed data on potential tonnage is reason for delay in filing of trainload rates proposed by the Rock Island Lines, NATIONAL PETROLEUM NEWS was told today by A. MacKenzie, Rock Island's freight traffic manager.

Without the data promised by the refiners, showing how the increased business would provide additional gross revenue to offset the decrease in rates, Mr. MacKenzie said, the Rock Island was unable to proceed with its proposed rates. Only a small percentage of the Petroleum Rail Shippers' group have furnished the Rock Island the desired information, Mr. MacKenzie said.

Magnolia Plans 'Gas' Line To Oklahoma City

N. P. N. News Bureau

TULSA, July 20. — Magnolia Petroleum Co. is expected to announce plans soon for a 4-inch gasoline pipeline from Fort Worth to Oklahoma City. Property owners report that easements have already been obtained in certain sections.

While Magnolia has made no announcement, it was believed here that the pipeline project ties in with $2,000,000 modernization program at its Fort Worth refinery and foreshadows an expansion of Magnolia's marketing operations in Oklahoma.

Barge Adviser Named

WASHINGTON, July 20. — Alex W. Dann, Union Barge Line Corp., Pittsburgh, was appointed as an adviser on Transportation to the National Defense Advisory Commission this week.

ICC Weighs Trainload Rates After Hearing Pros and Cons

N. P. N. News Bureau

WASHINGTON, July 22. — Application of the trainload rate theory to petroleum products is being considered by the Interstate Commerce Commission, following conclusion of oral argument in the Petroleum Rail Shippers Association case.

Question immediately before the ICC is establishment of such rates on gasoline and natural gasoline moving from Southwestern refining points to certain mid-western pipeline terminal points, as recommended in a report prepared by Examiner C. E. Stiles. ICC has already approved trainload rate principle in a molasses case.

ICC in proceeding to a decision has before it a picture of pipelines jeopardizing the existence of independent refiners, as presented by James H. Lawrence, P.R.S.A. counsel, and a warning from Morris-Roberts, railroad counsel, that the Commission lacks grounds to set trainload rates in the present case.

Suggests Limit on Pipeline

Meanwhile, ICC Commissioner Joseph B. Eastman, during Roberts' argument, had suggested that pipeline profits be limited to 6 per cent, and while he repeated the suggestion on several occasions, he did not disclose the form such legislation by Congress might take.

The Eastman views on profit limitations recalled to those present that the government had once attempted to place a ceiling on railroad profits, in the recapture clause repealed in 1933. Under that provision of the ICC act, the government by a complicated formula required the ICC to establish fair rates of return on investment, and then made the carriers put half their excess profits into their reserves. Balance was taken by the government and loaned to needy railroads.

'Surprisingly Good'

Endorsing Examiner Stiles report as "surprisingly good" but maintaining the ICC should take further steps to improve the position of independent refiners competing with major companies owning interests in pipelines, Mr. Lawrence declared independent concerns in the Mid-Continent field will be forced out of business, unless something drastic is done.

"Independent refiners in the Mid-Continent field are drying up," Mr. Lawrence told the ICC, saying they cannot last another two years if relief is not forthcoming.

Mr. Lawrence said that in his personal opinion pipelines are absolutely unnecessary, and railroads should handle all oil traffic. Investments in pipelines are not "sacred," he said, contending railroads are the logical way to handle oil since they are 5 times faster than pipelines. Mr. Lawrence estimated the pipeline loss to the carriers at $1,000,000,000 annually.

Others Support Stiles Report

Additional endorsements for the Stiles report came from Douglas Orme, Cosden Oil Co., who said it was as good as far as it went, but that trainload rates should be extended to all pipeline terminal points, and H. A. Hollopeter, Indiana Independent Petroleum Association, who urged a more thorough revision of rail rates to give Indiana a better break with preferred Illinois destinations.

Further support for the Stiles report was voiced by J. R. Lewallen, Tide Water Associated Oil Company, who asked trainload rates be extended to fuel oil distillates.

Rails Oppose Trainload Plan

Principal argument against the Stiles recommendation for trainload rates on gasoline and natural gasoline was made by Roberts, speaking for all except two of the nation's railroads. He contended, among other things, that the question of trainload rates had not been raised in the P.R.S.A. complaint, no evidence on the subject appeared in the record of the hear-

ings, and therefore the ICC cannot now prescribe such rates.

Supporting this position were R. W. Fyfe, Standard Oil Co. of Indiana, and C. Young Spence, Shell Oil Co., who warned, in effect, that a trainload rate order in the instant case might be regarded by the U. S. Supreme Court as arbitrary. Mention was made of the Kansas City Stockyards case, wherein stockyards rates of the secretary of agriculture were upset on the ground their establishment had been arbitrary.

Then came the suggestion that the ICC should hold a public hearing before establishing trainload rates.

Rail attorney Roberts also challenged any trainload rate order the ICC may now make in view of Examiner Stiles' failure to find existing single carload rates unreasonable.

There is no way of determining relative costs of handling gasoline in single car and in trainload lots, Mr. Roberts said in answer to questions asked by the ICC commissioners.

Commissioner Eastman then observed the carriers had once claimed they could not reduce their rates, yet in the face of truck competition had slashed them by one-half and still were making money. The commissioners variously displayed interest in pipeline profits and were told those of gasoline lines were not as much as in the case of crude oil lines.

Representatives appearing for pipeline companies entered no objections to the Stiles report. Those present were T. H. Burgess, representing Great Lakes and Phillips pipeline companies, and G. E. Young, Illinois Pipe line Company.

Oil Associations Keep Eyes On Southwest Price Cuts

(Other news of crude price situation on Pages 13 and 14.)

N. P. N. News Bureau

TULSA, July 22. — Developments in southwestern crude oil markets and the July 16 cut in North Central Texas area crude prices focused attention of Mid-Continent oil associations on a solution to problems leading up to this condition.

Special call for Independent Petroleum Assn. of America's board of directors to meet at Oklahoma City July 25 was made today by Association President Frank Buttram to discuss "problems pertaining to the conservation program that require prompt and careful attention."

Problems facing the industry were listed by Mr. Buttram as "loss of export markets, large increases in imports, excessive runs to stills, failure to adequately adjust refinery yields, and excess gasoline runs and production in excess of consumptive demand for several months."

Strippers on Alert

Eleven of the Oklahoma Stripper Well Assn.'s executive committee met last week, concluded that present overproduction constituted "waste" and called on the Interstate Oil Compact Commission to solve the problem before it disrupts the entire industry.

Their recommendations for solution of the problem called for curtailment of production to consumptive demand, elimination of soft spots in southwest's crude situation and prevention of further crude stock accumulations.

Blames Refiners Some

"It is the opinion of the Oklahoma Stripper Well Assn. that the present condition has been brought about in part by the refineries who have refused to curtail runs to stills and we as producers should not have to suffer because of their mistakes," President W. A. Goforth of the stripper group said.

The stripper well association executive committee pledged cooperation in any movement that will bring about a parity between production and market consumption, it was announced.

Favoring a 15 to 30-day shutdown of oil wells, Panhandle Producers & Royalty Owners Assn. stated it was willing to sacrifice its interest to the general welfare of the industry. Shutdown was favored, it was announced, "in hope we can avoid waste by general overproduction of oil, prevent ruinous price cuts and after such shutdown receive an allowable that will permit us to live." The Panhandle association has been actively seeking increased production allowables in the area covered by its membership.

Howard Promoted by S.O.N.J.

NEW YORK, July 23.—Frank A. Howard, President of Standard Oil Development Co. has been elected a Vice-President of Standard Oil Company (of New Jersey) with responsibility for all chemical, research and patent matters.

Gasoline Demand in August Will Hit 56,200,000 Barrels

(*Continued from Page* 13)

summer months of 1940, the bureau stated, pointing out that anticipation of 0.5c increase in federal gasoline tax probably resulted in large purchases in June.

"Effect of this should be absorbed largely in reduced sales in July, although some of the effect may linger into August," report added.

"Forecasts by principal exporters of motor fuel point to continued low shipments of motor fuel to foreign countries," and bureau estimates 1,900,000 bbls. for August, 100,000 less than July estimate and 2,308,000 bbls. less than August 1939 actual.

War Closes Markets

Liquidation of large stocks of gasoline accumulated during the winter months is proceeding slowly due to high runs to supply relatively greater demand for light fuels and to build up depleted stocks of these oils. Bureau estimates a reduction of 6,400,000 bbls. during August.

The European war has closed "additional markets" to exports of crude and refined products, report says, estimating August crude exports at 3,700,000 as against 5,969,000 bbls. exported August 1939. Net effect of this decline in exports is to offset increases in domestic market. Domestic crude demand was forecast in August at 3,657,700 bbls., only about 1% (29,300 bbls.) higher than July estimate and 15,400 bbls. higher than August 1939 actual crude demand.

Estimated demand for crude by states in August, as compared with actual demand in August, 1939, and the forecast for July, 1940, follows:

Texas-Empire Line Valued $11,100,000

N. P. N. News Bureau

WASHINGTON, July 23.—Value of assets received by the Texas-Empire Pipe Line Co. from a subsidiary concern specially organized to obtain Illinois right-of-way, shall be valued at $11,100,000, on a "going concern" basis for federal income tax purposes, the U. S. Board of Tax Appeals ruled today.

Texas-Empire contended that intangible assets of the subsidiary had no value and the property received should be valued at no more than $5,186,210.

Texas-Empire was jointly organized in 1928 by The Texas Corp. and Empire Fuel & Gas Co. to build a pipeline from the Mid-Continent area serving subsidiary refineries at Lockport and Lawrenceville, Ill. and East Chicago, Ind., the board found. To obtain eminent domain rights in Illinois, Texas-Empire organized the subsidiary in 1928, and then acquired its assets in liquidation.

Dispute involved question of whether Texas-Empire owed government $1,274,902 deficiency income taxes for 1932, as claimed by the Internal Revenue Commissioner, or the government owes Texas-Empire a $216,785 refund, as contended by the latter.

Other Refinery Statistics

Summaries of Bureau of Mines forecast for August are to be found on page 11 of this issue, along with estimated gasoline production by refining districts. Other refinery statistics appear also on that page.

Estimated Daily Average Crude-Oil Demand by States

State	Forecast Aug. 1940	Forecast July 1940 Barrels	Actual Aug. 1939
Texas	1,326,400	1,339,400	1,433,800
California	598,400	593,900	626,200
Illinois	440,600	402,300	283,400
Oklahoma	402,600	403,900	456,400
Louisiana	276,100	278,100	281,100
Kansas	166,800	159,400	131,200
New Mexico	105,200	106,100	99,600
Wyoming	81,300	80,600	79,100
Arkansas	65,200	67,400	59,900
Michigan	57,100	61,600	60,400
Pennsylvania	48,000	47,900	54,800
Montana	20,600	18,100	19,200
New York	14,000	14,000	16,800
Kentucky	13,900	14,200	18,300
Mississippi	10,300	9,700	
Indiana	10,000	9,000	4,400
West Virginia	9,000	10,000	9,100
Ohio	8,000	8,000	5,100
Colorado	4,200	4,800	3,500
Total U. S.	3,657,700	3,628,400	3,642,300

Refining Technology

INCLUDING INTERNATIONAL PETROLEUM TECHNOLOGY

IMPROVED and changing methods in the clay treatment of cracked gasoline and lubricating oils are showing their effect upon the output of the clay industry. Recent reports of the Bureau of Mines show that fuller's earth output fell 51% during the nine years from 1930 to 1939 when 167,000 short tons were produced. Contrasting to this decline, bentonite sales jumped from about 79,000 short tons in 1931 to nearly 220,000 short tons in 1939. Of the latter, more than 43% or 94,000 short tons were used at refineries for filtering and decolorizing oils.

While no corresponding percentages are available for fuller's earth, it is an observed fact that before 1930 the output of fuller's earth increased almost directly with the rapid expansion in petroleum refining where the predominant amount of fuller's earth is consumed. The failure of fuller's earth to keep pace with petroleum refining during the past decade is partly due to a relative reduction in the increase in output of lubricants, the branch of oil refining that uses the largest proportion of bleaching clay. Improved methods of processing that require less fuller's earth and substitution of other materials such as the activated earths (largely bentonite) also account for the decline of production of fuller's earth.

The future gives no promise for an upturn in fuller's earth but on the contrary developments in processing methods indicate still further declines in requirements. A recent development in clay regeneration methods by the Socony-Vacuum Oil Co. is said to maintain clays at about fresh-clay efficiency after 16 burns as compared with past average experience of 50% reduction in efficiency after 5 to 10 burns. While this performance suggests the possibility of a trend back to fuller's earth from the other bleaching clays, based upon these claims, it still appears likely that fuller's earth consumption in oil refining will continue to decline.

Both bentonite sales and bauxite consumption reached new peaks in 1939. Bauxite, being a newcomer in the field of percolation processes (1938) and so far applicable only to the paraffinic type oils, is of relatively small importance in clay treating processes. However, there are at least 10 refineries using bauxite which has the principal advantage that it can be revivified indefinitely. This fact may no longer be an advantage if the above-mentioned fuller's earth regeneration method proves itself in plant operation.

* * *

At a meeting of one of the technical associations during the past several months the performance of modern aircraft diesels was painted in such rosy colors that discussion of the subject following presentation of the paper was ruthless in attacking the presumption that an aircraft diesel could, by any stretch of the imagination, compete with 90 to 100-octane gasoline aircraft engines. As one of those present was heard to remark at the close of the session, "They nailed him (the speaker) to the wall and passed out the knives."

In spite of this demonstration the aircraft diesel is still worth watching. There may be a considerable field of utility for the diesel in aircraft, just as in the automotive field. Tests are in progress today on improved designs of aircraft diesels. Diesel engineers are not giving up yet by any means. Even without equivalent performance characteristics of high-octane gasoline aircraft engines there are advantages to diesels that are unquestioned. It is at least significant that aircraft diesel performance is within hailing distance of high-performance gasoline engines so that challenges such as those thrown out at this meeting can be heard in the gasoline engine camp.

One of the most recent experiments with aircraft diesels is feeding oxygen into the intake air during take-off. These experiments were reported by Prof. Paul Schweitzer, Pennsylvania State College, who said results showed that power output can be increased 55% for a few minutes during take-off without detonation or strain on the engine, thus increasing by a corresponding amount the load a given airplane can carry, or decreasing the size of engine required.

While these experiments have little or no significance to military aircraft, they should attract interest in air transport and private flying, both of which are growing rapidly. Air transport showed a gain of nearly 64% in revenue passenger miles the first five months of this year as compared to last. Major oil companies are spending thousands of dollars for research on high-speed diesel fuels and lubricants. The signs still indicate that this expense will not be in vain.

* * *

A market partially lost to sulfur and sulfuric acid producers by the introduction of solvent refining methods since 1932 is expected to be regained with increasing installation of alkylation processes for production of aviation fuels. The passing of older processes is frequently accompanied by reactions in industries on which they are dependent.

This is not so much true of so-called chemical staples such as sulfuric acid, it was pointed out recently by sulfur-producing company executive. With these products, changes and new developments in chemical technique sometimes temporarily disarrange consumption of some of these "staples" but the advance of chemistry, over a long term, tends to increase the use of the older products. Thus, the past year was the third largest in the sulfur industry, being surpassed only by 1937 and 1939.—M. G. V.

Destructive Alkylation Produces High-Octane Aviation Gasoline

By D. L. Gol'dshtein† and B. A. Englin†

Translated by J. G. Tolpin, Gray Processes Corp., from Neftyanoe Khozyaistvo (The Petroleum Industry) Vol. 20, No. 7, p. 27-34, 1939, and submitted by the Petroleum Division of the American Chemical Society.

ABSTRACT

Destructive alkylation of oil products in the presence of aluminum chloride under mild temperature conditions is facilitated by using a stock containing no bi- and polycyclic hydrocarbons. This eliminates formation of a solid or viscous residue on the catalyst which has made commercial operation of the process impractical.

Paraffinic hydrocarbons are used advantageously in admixture with hydrocarbons the alkylated products of which have high antiknock properties. It is advantageous to use aromatic hydrocarbons, especially benzene, with the paraffin hydrocarbons in the preparation of aviation fuel. The presence of sulfur compounds is no disadvantage since more severe reaction conditions facilitate desulfurization. Coal tar benzol, therefore, can be used as a starting material.

Gasolines which have been used for destructive alkylation include Grozny paraffin-base gasoline, a synthetic product obtained catalytically from water gas and consisting essentially of normal paraffins, and Ishimbaev gasoline. These have been mixed with benzene in proportions of 1:1 to 4:1. Octane numbers as high as 95.5 have been obtained with 3 cc. of TEL per kg. (A U. S. gallon of gasoline weighs 2.8-2.9 kg.)

WHEN oil products are heated with aluminum chloride a number of reactions occur leading finally to formation of light hydrocarbons (gasoline, gas) and heavy condensation products. The entire process is usually called catalytic cracking with aluminum chloride. It was established by studies carried out at TsIATIM* (1), GrozNII* (2) and Khimgaz* (3), etc. that it is possible to produce by catalytic cracking light gasolines of high antiknock properties from heavier petroleum products such as kerosine, gas oil, solar oil, mazut, etc. The high antiknock properties and the higher sensitivity of these gasolines to TEL is caused by their considerable content of isoparaffins. Since the gasolines contain no unsaturated compounds, they are stable on storage.

A gasoline prepared by the authors using this method under experimental plant conditions was tested in a supercharged engine. The results show that the catalytically cracked gasoline completely satisfies the requirements of the present day supercharged aviation engines.

However, the method up to the present has not been commercially developed. This is due mainly to the following reason. In extensive cracking with aluminum chloride a solid residue is formed and no method of mechanical stirring of the reaction mixture with subsequent removal of the solid residue has been suggested up to the present that would be sufficiently acceptable for industrial use. A method of solving this problem could be found if the complex residue would remain liquid. The reaction can be interrupted before completion. In this case a sludge is formed that is fluid only at high temperatures. Its consistency greatly depends upon the character of the initial oil product, its fractional and chemical composition. However, the removal of this sludge at comparatively high temperatures is accompanied by a number of difficulties when using the process on a large scale. At lower temperatures the residue solidifies, which hinders its discharge through pipes.

IN view of the above, further study was guided by the following considerations. Formation of the residue in cracking with aluminum chloride takes place to a marked extent through condensation of bi- and polycyclic aromatics and naphthenes. Elevated temperatures facilitate these reactions. It is possible to prevent formation of a solid or viscous residue without reducing the gasoline yield either by lowering the reaction temperature or by using a stock containing no bi- and polycyclic hydrocarbons.

Aluminum chloride effects cracking of paraffins even at room temperature, and the reactivity of the paraffins increases with the extent of their branching (4). The reaction velocity rapidly increases with rise of temperature. The mechanism of the reaction in the case of paraffins can be outlined as follows. Under the effect of aluminum chloride the paraffin molecule suffers a rupture of the bond between two carbon atoms with formation of a paraffin and an olefin of lower molecular weight (cracking reaction). The olefins thus formed may add to the paraffins forming hydrocarbons with a higher degree of branching (isomerization reaction) or to the initial hydrocarbons forming paraffins of higher molecular weight (alkylation reaction); finally they may unite with other unsaturated molecules (polymerization reaction).

Other Reactions Possible

A number of other simultaneous reactions are possible such as dehydrogenation, hydrogenation of the unsaturated hydrocarbons formed, etc. All these reactions take place simultaneously to some extent and, depending upon the reaction conditions, one reaction predominates. As a result the final product of treatment of paraffin hydrocarbons consists of a complex mixture of paraffins boiling within a wide temperature range. Considering all the above reactions, the entire process was termed autodestructive alkylation.

If a mixture of paraffins with aromatics or naphthenes is used, the olefins formed in cracking of paraffins will also alkylate these compounds. The olefins will add predominantly to aromatic hydrocarbons since these are the more reactive; next they will add to naphthenes and least to paraffins (5, 6, 7, 8, 9, 10, 11, 12). In this case the process may be called destructive alkylation. Two layers are formed by interaction of aluminum chloride with the different hy-

* Abbreviated names of petroleum research institutes.
† TsIATIM, a petroleum research institute in Moscow.

drocarbons (when the process is carried out in an autoclave). The upper layer is very mobile and consists of saturated hydrocarbons while the lower constitutes a complex of aluminum chloride with hydrocarbons.

The authors' studies revealed that the presence of aromatics in the initial material facilitates formation of a residual complex that is comparatively mobile at low temperatures. In destructive alkylation the basic reaction that characterizes the extent of the entire process as well as its direction, consists in splitting the hydrocarbon that is responsible for the formation of unsaturated hydrocarbons. The latter are the basic elements in the process of alkylation. Since paraffins are most easily split, a higher degree of destructive alkylation is attained by using a stock with a high content of paraffin hydrocarbons.

The paraffin hydrocarbons are advantageously used in admixture with hydrocarbons the alkylated products of which, especially those boiling above 100°C. (212°F.), are characterized by high antiknock properties. In selecting the second component the following was considered. Naphthenic hydrocarbons, especially homologs of cyclohexane and cyclopentane, possess comparatively low antiknock properties. Benzene homologs have high octane numbers and a number of them are distinguished by their high lead susceptibilities. In view of the fact, indicated above, that aromatics are more easily alkylated by unsaturated hydrocarbons than naphthenes, it is advantageous to use aromatic hydrocarbons, especially benzene.

The limited effectiveness of benzene as an aviation fuel is due to its high pour point and the decrease of its antiknock properties in supercharged aviation engines. These properties are markedly improved by its conversion into alkyl benzenes. Also from this point of view it is advantageous to use benzene as a component in the process of destructive alkylation.

In straight alkylation of benzene the presence of sulfur compounds reduces its reactivity in many cases. However, in its destructive alkylation this drawback is eliminated due to the more severe reaction conditions that facilitate desulfurization by the action of aluminum chloride. This will make possible the use of coal tar benzol as a starting material.

On the basis of the above considerations the following mixtures of paraffin hydrocarbons with benzene (in different proportions) were used for destructive alkylation.:

1. Grozny aviation gasoline containing 50-60% paraffin hydrocarbons;
2. Ishimbaev oil products;
3. Synthin, consisting almost exclusively of normal paraffin hydrocarbons.

Experimental Work

Destructive Alkylation of Benzene with Grozny Aviation Gasoline

Ordinary Grozny aviation gasoline with an octane number of 58 was used in this study. It was mixed with benzene in the proportion of 1:1 by volume and the mixture with 10% aluminum chloride was charged into an autoclave fitted with a stirrer. The experiments were carried out at 150° and 200°C. (302° and 392°F.) for two hours under a pressure of 20-25 atm. The reaction product, consisting of a wide fraction, was distilled through a Gadaskin column into fractions boiling up to 70°, 70-95°, 95-122°, 122-150°, 150-180°C. (158°, 158-203°, 203-251.6°, 251.6-302°, 302-356°F.). For the sake of comparison the initial product was also fractionated within the same temperature limits.

From the percentage of sulfonated compounds in the fraction and its yield, the distribution of the aromatic hydrocarbons in the fractions before and after the experiment was calculated. For the mixture of all fractions, the octane numbers without tetraethyl lead and with 3 cc. per kg. of TEL were determined. The obtained data are given in Table 1. They completely confirm the considerations outlined above according to which destructive alkylation of benzene with paraffin hydrocarbons results on one hand in a lighter fractional composition of the reaction products due to decomposition of the saturated hydrocarbons, and on the other hand in heavier fractions, containing

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Table 1

Distribution of Aromatic Hydrocarbons In 1:1 Mixture of Grozny Gasoline and Benzene

Fractions	Starting Material: %	Starting Material: d_{20}^{20}	Starting Material: % Sulfonated	Starting Material: Distribution of aromatics	After destructive alkylation at 150°C.: %	After destructive alkylation at 150°C.: d_{20}^{20}	After destructive alkylation at 150°C.: % Sulfonated	After destructive alkylation at 150°C.: Distribution of aromatics	After destructive alkylation at 200°C.: %	After destructive alkylation at 200°C.: d_{20}^{20}	After destructive alkylation at 200°C.: % Sulfonated	After destructive alkylation at 200°C.: Distribution of aromatics
Gas	....	.....	..	....	6	.....	..	....	10	.....	..	....
Fraction to 70°C.	3.5	0.685	13	1.2	6	0.660	7	1.0	6	0.657	5	0.6
Fraction 70-95°C.	74.3	0.845	76	95.2	38	0.831	73	53.4	30	0.828	68	40
Fraction 95-122°C.	14.5	0.755	9	2.3	7.4	0.794	42	6.5	8.5	0.808	60	9.3
Fraction 122-150°C.	4.8*	0.757	6	0.8	9.5	0.821	62	11.5	13	0.840	70	19.2
Fraction 150-180°C.	..	.....	..	....	3	0.847	76	4.6	4	0.862	92	7.2
Residue	2.2	.....	12	0.5	7.4	0.918	70	10.1	12	0.931	72	16.3
Complex	....	.....	..	....	11	.....	..	12.9	9	.....	..	7.4
Losses	1.2	.....	..	....	11.7	.....	..	....	7.5	.....	..	....
Octane numbers of the gasolines	Without TEL		..	75	Without TEL		..	81.5	Without TEL		..	84
	3 cc./kg. TEL		..	89.5	3 cc/kg. TEL		..	92	3 cc./kg. TEL		..	95.5

*End point 132°C. according to OST, the Soviet Standard Method.

Table 2

Properties of Synthins Alkylated with Benzene

No.	Fractions	d_{20}^{20}	Fractional composition according to OST** I.B.P.	10%	50%	90%	End point	To 100°C.	To 130°C.	Octane number Without TEL	Octane number 2 cc./kg. TEL
1	Synthin fraction to 120°C.	0.658	33	46	68.5	102	117/96	87.5	..	51	..
2	Synthin fraction to 140°C.	0.664	43	57	81	119	144/97.5	73	95	....	68
3	Synthin fractioin to 175°C.	0.677	43	60	93	149	174/97.5	58	81	23.5	..
4	Synthin fraction to 220°C.	0.701	48	64	111	193	216/97.5	43	61	2	50
5	Synthin fraction 95-175°C.	0.704	100	110	126	160	177/98	....	57	....	..
6	Synthin fraction to 125°C.*	0.666	57	...	78	108.5	124/98	81.5	..	....	..

* Synthin from a different stock. ** Soviet Standard Method.
NOTE: Octane numbers of fractions Nos. 2, 5 and 6 were not determined because of lack of sufficient material.

alkyl benzenes, formed by alkylation of benzene with unsaturated decomposition products.

From the data of Table 1 it is seen that most of the initial product (74.3%) boils within 70-95°C. (158-203°F.), only 3.5% boiled below 70°C., while 20% boiled above 95°C. After the destructive alkylation at 200°C. (392°F.) only 30% boils at 70-95°C., while 37.5% of the product distills above 95°C. and 16% of the product below 70°C., of which 10% consisted of gas. The increase in the content of low boiling fractions takes place through decomposition of the initial paraffinic stock with formation of paraffin hydrocarbons and the increase of higher boiling products essentially through formation of alkylated aromatic products. Thus, before the destructive alkylation 95.2% of the light aromatics were concentrated in the fraction boiling at 70-95°C., while after the reaction this fraction contained only 40% aromatics and 52% of the entire aromatics boiled above 95°C., the fraction 150-180°C. consisting almost exclusively (92%) of aromatic hydrocarbons.

The temperature of the reaction is of essential significance since increase in temperature results in increase in destructive alkylation. Decomposition of the initial paraffin hydrocarbons of low octane number and formation of low boiling saturated hydrocarbons and alkyl benzenes could not but raise the octane number of the final products. Thus, the octane number was increased from 75 for the initial stock to 81.5 when the process was carried out at 150°C. and to 84 at 200°C. With ethyl fluid the octane number of the products increased from 89.5 to 92 and 95.5, respectively.

The experimental conditions employed here are far from optimum. With other proportions of gasoline to benzene, other temperatures and reaction times still higher effects can be produced. It may be regarded as established in principle that in destructive alkylation, using Grozny gasoline as one of the components, a high quality gasoline can be obtained at comparatively low reaction temperatures.

Alkylation of Benzene with Synthin

Synthin is a synthetic product obtained catalytically from water gas. A wide fraction is obtained in the reaction consisting essentially of normal paraffins. Depending upon the proportions of hydrogen to carbon monoxide in the water gas and also upon the character of the catalyst, the synthin also contains unsaturated compounds along with saturated hydrocarbons. Synthin obtained directly from water gas possesses a low octane number since it consists essentially of normal paraffins. From data obtained in destructive alkylation of benzene with Grozny gasoline and on the basis of literature data on destructive alkylation of benzene with individual hydrocarbons, experiments were carried out by the authors for the improvement of the anti-knock properties of synthin by destructive alkylation of benzene.

Two synthin samples were put at the authors' disposal by VNIIG. These were prepared at different times in an experimental installation. In order to determine the effect of the fractional composition of the synthin on the process of destructive alkylation, gasolines of different fractional composition were prepared from synthin. Their properties are given in Table 2. These gasolines were mixed with benzene in the proportions of 1:1 and 2:1. The properties of the mixtures are shown in Table 3. The experimental conditions, material balance, and properties of the broad

Table 3

Properties of Synthin Bezene Mixtures

Fractions	Experiment No.	d_{20}^{20}	Fractional composition according to OST I.B.P.	10%	50%	90%	End point	To 100°C. %	To 130°C. %	Solidification temperature °C.	Octane number Without TEL	Octane number 2 cc./kg. TEL	Octane number 3 cc./kg. TEL
Synthin fraction to 120°C. + benzene 1:1	26	0.768	46	60	74.5	85	120/57	95	....	—13	70	88.5	....
Synthin fraction to 120°C. + benzene 2:1	29	0.732	40	55	72	92	115/96.5	93	....	—22	62	83	....
Synthin fraction to 140°C. + benzene 2:1	48	0.737	44	61	78	115	145/97	85	91.5	—23	50	78	....
Synthin fraction to 175°C. + benzene 2:1	39	0.743	47	62	81	148	167/98	76.5	87	—25	42	73	....
Synthin fraction to 220°C. + benzene 2:1	54.61	0.753	57	69.5	88.5	188	219/98	64	75	—24	38	69.5	....
Synthin fraction 95-175°C. + benzene 2:1	37	0.763	80	87	100	149	169/98	50	74.5	—24	..	58	....
Synthin fraction to 125°C.* + benzene 1:1	7	0.774	53	66	77	89	127/98.5	94	....	....	62	....	86.5
Synthin fraction to 125°C. + benzene 2:1*	10	0.740	48	62	76	99	121.5/97	91	....	....	..	....	....

*Synthin from a different stock.

Table 4

Destructive Alkylation of Synthin-Benzene Mixtures

Exper. No.	Experimental conditions °C.	Duration, hours	Pressure, ATM.	% $AlCl_3$	Wide fraction	Material balance Gas	Complex	Losses	Gasoline	Properties of the broad fraction Fractional composition according to OST d_{20}^{20}	I.B.P.	10%	50%	90%	End Point	To 100°C.	To 130°C.	Properties of the obtained complex
26	200	2	32	10	86	1	9	4	76.5	0.766	35	55	78	124	163/96	82	91	Very fluid at 70°C.
29	200	2	28	10	77	5	12	6	67	0.722	27	46	76.5	135	174/94.5	77	89	
48	200	2	20	10	75	4.5	13	7.5	65	0.720	31	50.5	80.5	139	164/93	74.5	87.5	The same fluid at 70-80°
39	200	2	25	10	78	7	10	5	63	0.739	27	49.5	86	168	234/95	63.5	79	The same fluid at 50-60°
54	200	2	30	10	70	11	10	9	56.5	0.748	33	55.5	95.5	191	251/96	54.5	71.5	The same fluid at 50-60°
61	175	2	20	10	80	3.5	11	5.5	60	0.748	30	54	94	193	240/95	56	71.5	The same fluid at 50-60°
37	200	2	31	10	72	10.5	13	4.5	55.5	0.759	33	68	108.5	185	230/93.5	38.5	69	The same fluid at 80°
7	200	2	20	10	77	4.5	12	6.5	61	0.782	31	58	91.5	193	262/93	60	74	The same fluid at 80°
10	200	2	22	10	80	3.5	9.5	7	75	0.735	25	48	84.5	210	275/94	65	79.5	The same fluid at 70-80°

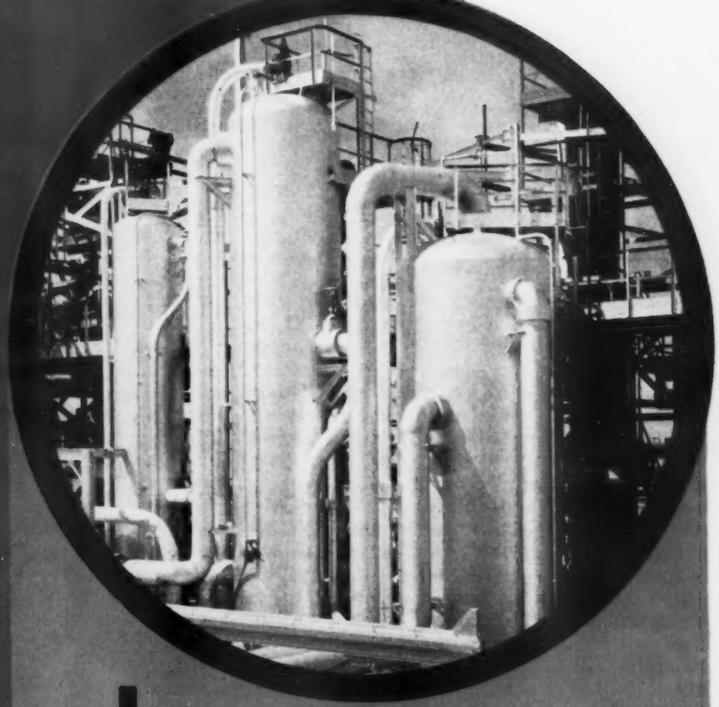

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TABLE 5

Properties of Gasolines from Synthin-Benzene

Exper. No.	Yields of the Separate Fractions: To 70° C d^{20}_{20}	To 70° C % by wt.	70—95° C d^{20}_{20}	70—95° C % by wt.	95—122° C d^{20}_{20}	95—122° C % by wt.	122—150° C d^{20}_{20}	122—150° C % by wt.	Properties of the Mixture of All Fractions (Gasoline): d^{20}_{20}	I.B.P.	10%	50%	90%	End Point	—Fractional Composition According to OST— To 100° C %	To 130° C %	Solidification Temp. °C	—Octane Number— Without TEL	2 cc./kg. TEL	3 cc./kg. TEL
26	0.662	17	0.807	45	0.778	5.5	0.837	9	0.775	48	63.5	80.5	115	141/97.5	84	95	—25	71	88.5	....
29	0.657	23	0.766	26	0.761	9	0.835	8.5	0.731	40	57	77.5	119	140/96.5	81.5	94	—45	60	83.5	....
48	0.656	20	0.769	27	0.751	11	0.795	7	0.731	45	66.5	80	121	144/96.5	79	94	—40	56	82	....
39	0.645	16	0.775	24	0.771	9	0.795	9	0.746	43	62	87.0	145	171/97	68	83	—45	60	85	....
54	0.656	14	0.777	17	0.777	8	0.805	10	0.750	46	63.5	91.5	152	178/97	59.5	79	—53	62	85	87.5
61	0.663	18.5	0.794	22.5	0.770	8	0.788	11	0.745	42	62	83.5	130	156/97.5	73	90	—48	..	86	....
37	0.651	4.5	0.782	17.5	0.747	11	0.779	15.5	0.765	58	83.5	108.5	152	171/97.5	37	73	—52	48	79	....
7	0.664	11.5	0.803	32	0.814	5.5	0.860	12.2	0.788	48	67	89	137	160/97	67	86		79	..	94.5
10	0.666	27.5	0.780	30.8	0.791	3.8	0.834	12.7	0.734	40	57	81	130	167/97	74	90		63.5	..	88

fraction and of the complex are given in Table 4. Data on the gasolines obtained are reported in Table 5.

With increase in the heavy-fractional composition of synthin, there is increase in the extent of the reaction which confirms the connection noted above between the molecular weight of paraffin hydrocarbons and their reactivity. In the destructive alkylation of synthin fractions with end point 120°C. (248°F.) a slight change of the composition and the properties of the reaction products is observed. The octane number of the gasoline after the experiment remains almost unchanged. This is observed using a 1:1 ratio of synthin to benzene, as well as a 2:1 ratio. In destructive alkylation of the fraction with end point 140°C. (284°F.) the octane number rises by six units in comparison with the starting stock.

The synthin fraction with end point 175°C. (347°F.) underwent a considerably larger degree of destructive alkylation. Its octane number rose from 42 without lead or 73 with 2 cc. of TEL per kg. (Experiment 39) to 60 without lead or 85 with 2 cc. of TEL per kg. In this respect it is better than the reaction products of the lower fractions. The same is observed for the fraction 95-175°C., in which the octane number in the presence of 2 cc. TEL per kg. rose after the reaction by 21 units. The highest change took place in the destructive alkylation of the synthin fraction with end point 220° (Experiments 54, 61). The pour point in experiment 54 was lowered from −24 to −53°. The octane number rose from 38 to 62 without TEL and from 69 to 85 with 2 cc. TEL per kg. or 87.5 with 3 cc. TEL per kg. The yield of the gasoline was 56.5%.

Thus, when products of a heavier fractional composition and consequently of lower octane number are used in destructive alkylation there results a higher relative increase in the octane number of the gasoline obtained as well as its higher absolute value regardless of the proportion of synthin to benzene.

From the second synthin stock a fraction with end point 125°C. was taken and mixed with benzene in the proportions of 1:1 (Experiment 7) and 2:1 (Experiment 10). Unlike the first synthin used in which case no pronounced effect was obtained up to the fraction with end point 175°C, destructive alkylation of the synthin fraction with end point 125°C. obtained from the second stock produced a substantial change in the properties of the product. The octane number rose from 62 to 79 without TEL and from 86.5 to 94.5 with 3 cc. TEL when the synthin-benzene ratio was 1:1. This fact may evidently be explained by the chemical composition of synthin since the available samples were produced at different times and under different conditions. They could differ in composition, which would be reflected in the results of destructive alkylation.

Besides improvement of the antiknock properties of the product the consistency of the sludge obtained is of importance in destructive alkylation. Table 4 shows that in all experiments with synthin the sludge complex remains fluid at 60-80°C. (140-176°F.), i.e., at temperatures at which it can be poured off. By treatment of the complex with water and by heating slightly, it is easily decomposed.

Alkylation of Benzene with Ishimbaev Gasoline

Use of Ishimbaev gasoline as an aviation fuel is possible only when its antiknock properties are improved and its sulfur content likewise reduced. As in the case of Grozny gasoline and synthin, destructive alkylation with aluminum chloride was used for the improvement of antiknock properties. Since aluminum chloride is on one hand a good desulfurizing agent (13, 14, 15, 16, 17) and on the other hand easily forms with sulfur compounds at comparatively low temperatures mobile complex compounds of low viscosity (17), the authors assumed that destructive alkylation of benzene with Ishimbaev gasoline could improve the antiknock properties of the fuel obtained, simultaneously desulfurize it and produce a mobile complex. The presence of a high concentration of paraffin hydrocarbons (up to 65%) in the Ishimbaev gasoline should facilitate destructive alkylation.

The results with synthin were considered while selecting the fraction of the gasoline for these experiments. The gasolines used in the experiments had a composition as reported in Table 6. They were mixed with benzene in the proportions of 2:1 and 4:1. The analyses of the mixtures are reported in Table 7. Experimental conditions and the properties of the products obtained are reported in Tables 8 and 9. A heavier fractional composition of the gasoline is shown to bring about a higher degree of the reaction, with a more pronounced increase in the octane

TABLE 6

Composition of Ishimbaev Gasolines

Product	Exper. No.	d^{20}_{20}	—Fractional Composition According To OST— I.B.P.	10%	50%	90%	End Point	To 100° %	To 130° %
Ishimbaev gasoline, fraction to 140° C.	49–50	0.699	35	61	85	120.5	144/97.5	71.5	94
The same, to 190° C.	.....	0.735	49	74	126	179	184/94	31	51.5
The same, to 220° C.	.....	0.752	54	96	146	203	216/98	13.5	42.5
The same, to 240° C.	.....	0.749	47	83	141	212	240/97	21	42.5
The same, to 140–190° C.	.....	0.791	135	141	167	199	206/98.5	....	....

TABLE 7

Analyses of Ishimbaev Gasoline-Benzene Mixtures

Product	Exper. No.	d^{20}_{20}	—Fractional Composition According To OST— I.B.P.	10%	50%	90%	End point	To 100° C. %	To 130° C. %	Solidification Temperature, °C.	Octane number Without TEL	2 cc./kg. TEL
Ishimbaev gasoline (End point 140° C.) + benzene 2:1	44–45	0.756	49	65.5	79.5	113	145/97	85	95.5	—25	70	82
Ishimbaev gasoline (End point 140° C.) + benzene 4:1	51–53	0.730	4.3	64	82	116	145/97.5	80	95	—34	..	..
Ishimbaev gasoline (End point 190° C.) + benzene 2:1	62	0.782	57	73.5	92	185	205/97	58	69.5	—25	..	..
Ishimbaev gasoline (End point 220° C.) + benzene 2:1	63	0.791	57	75.5	98	199	216/97	51.5	63.5	—23	..	..
Ishimbaev gasoline (End point 240° C.) + benzene 2:1	68	0.791	58	77.5	99	200	236/98	51	65	—22	58	74
Ishimbaev gasoline, fraction 140-220° C. + benzene 2:1	60	0.823	77	90	140	189	203/98	29	42	....	..	..

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TABLE 8

Destructive Alkylation of Ishimbaev Gasoline-Benzene Mixtures

Experimental Conditions					Material Balance					Properties of the Broad Fraction — Fractional Composition According To OST								
Exper. No.	°C.	Duration, Hours	Pressure, ATM.	% $AlCl_3$	Wide Fraction	Gas	Complex	Losses	Gasoline	d_{20}^{20}	I.B.P.	10%	50%	90%	End Point	To 100° C. %	To 130° C. %	Properties of the Complex
44–45	200	2	28	10	75	8.5	10	6.5	57.5	0.758	31	52.5	85.0	179	192/92	67.5	81	Very fluid at 40° C.
49–50	200	2	33	10	..	8	..	...	....	0.686	27	43.5	76	164	202/91	71.5	84.5	Fluid at 100° C.
51	200	2	28	10	74	8.5	10	7.5	56	0.720	32	50	81.5	151	205/98.5	71.5	86	Fluid at 40° C.
53	225	2	30	5	88.5	3	5.5	3	74	0.724	29	53	81	136	167/94.5	74.5	88.5	Fluid at 40° C.
62	200	2	28	10	81	5	11	3	60.5	0.762	31	57	94	218	226/91	56	72.5	Fluid at 70-80° C.
63	200	2	28	10	77	5	11	7	59.5	0.779	35	60	97.5	202	243/94	52.5	71.5	Fluid at 70-80° C.
68	200	2	27	10	78	4	12	6	59.5	0.776	34	63.5	100	230	256/93	44	64.5	Fluid at 70-80° C.
60	200	2	25	10	79	6	11	4	60	0.790	36	73	120	205	259/94.5	32	57	Fluid at 80° C.

TABLE 9

Properties of Gasolines from Ishimbaev Gasoline and Benzene

Yields of the Separate Fractions										Properties of the Mixture of All Fractions (Gasoline) — Fractional Composition According To OST								Solidification Temperature, °C.	Octane Number	
	To 70° C.		70-95° C.		95-122° C.		122-150° C.		150-180° C.											
Exper. No.	d_{20}^{20}	% By Wt.	d_{20}^{20}	% By Wt.	d_{20}^{20}	% By Wt.	d_{20}^{20}	% By Wt.	d_{20}^{20}	% By Wt.	d_{20}^{20}	I.B.P.	10%	50%	90%	End Point	To 100°C. %	To 130°C. %		Without TEL	2 cc./kg. TEL
41–45	0.673	18	0.794	21	0.801	10	0.838	6	0.845	2.5	0.762	46	62.5	85	147	168/97	71	87.5	—47	79	92
49–50	.....	..	.....	..	.....	..	.....	..	.....	...	0.686	41	53.5	75	118	147/96.5	79.5	94.5	....	65	87
51	0.661	21	0.746	16	0.763	11.5	0.801	7	.....	...	0.725	41	58	82	128	163/97	74	91	—67	..	91
53	0.673	24.5	0.760	28.5	0.759	14	0.799	7	.....	...	0.732	45	61.5	83	130	159/96.5	72.5	90	—59	..	89.5
62	0.666	15.5	0.800	22	0.794	6	0.816	10.5	0.816	6.5	0.767	44	63.5	91	148	174/97	63	82	—48	..	90.5
63	0.659	11	0.798	22	0.807	10	0.825	10.5	0.824	6	0.777	51	70	93.5	149	180/97	59.5	81	—51	..	91.5
68	0.670	10	0.789	22.5	0.795	9	0.819	12	0.813	6	0.786	56	82.5	112	165	197/97	34	65	—50	..	87
60	0.675	7	0.809	17	0.796	10	0.798	18	0.798	8	0.778	55	75	99.5	152	174/96.5	50.5	75.5	—49	..	91

number; the octane number of the gasoline with 2 cc. TEL per kg. shows but little dependence upon the fractional composition of the initial gasoline. This makes it possible to destructively alkylate heavier products; not only are the yields of gasoline in the case of a heavier fractional composition of the product not impaired but even somewhat increased.

A decrease of the benzene content of the initial mixture from 33 to 20% lowers the octane number of the starting product but has little effect on the octane number of the final product in the presence of 2 cc. TEL per kg. The pour point of the final product is lowered from −25°C. (−13°F.) to −47°C. (−52.6°F.) when the proportion of gasoline to benzene is 2:1 and from −34°C. (−29.2°F.) to −67°C. (−88.6°F.) when this proportion is 4:1. A reduction of the consumption of aluminum chloride from 10% to 5% diminishes somewhat the extent of the reaction as well as the octane number. The yield, however, is increased, reaching 74%.

The sulfur content of the gasolines obtained is insignificant and fluctuates between 0.001 and 0.006%. The presence of sulfur compounds in the initial gasoline and in the benzene promotes the formation of mobile complexes. Thus, a 140°C. end point (Ishimbaev sulfurous) gasoline produces a complex that is fluid at 40°C. (104°F.); with a heavier fractional composition of the gasoline the mobility of the complex is somewhat reduced.

In the above experiments the optimum conditions of the reaction were not obtained. However, it may be asserted on the basis of these data that destructive alkylation of benzene with Ishimbaev gasoline can produce a gasoline that satisfies the requirements of present day aviation engines with regard to antiknock properties and that the sulfur content of the final product is greatly reduced during the reaction.

General Conclusions

1. Destructive alkylation (using benzene) improves the antiknock properties of low octane fuels.

2. Destructive alkylation (using benzene) produces a sludge complex of aluminum chloride with hydrocarbons that remains fluid and can easily be poured at low temperatures, which facilitates design of equipment for this process.

3. The reaction of destructive alkylation (using benzene) takes place under milder temperature conditions than the usual treatment of oil products with aluminum chloride in which a solid residue is formed. In the reported study destructive alkylation took place at 150-200°C. (302-392°F.)

4. In the present work Grozny paraffin-base gasoline, synthin and Ishimbaev gasoline were used for destructive alkylation.

5. Up to a certain limit, a heavier fractional composition of the initial product promotes more extensive destructive alkylation resulting in formation of a higher amount of alkyl benzenes. Thus, in the case of synthin, best results with regard to antiknock properties of the fuel were obtained with a 220°C (428°F.) end point fraction.

6. In reactions with Ishimbaev oil products, destructive alkylation results in simultaneous desulfurization of the high octane gasolines formed.

7. The data contained in table 10 were obtained in destructive alkylation of benzene with Grozny gasoline, Ishimbaev gasoline and synthin.

8. The results obtained with the products investigated in this work are not optimum and do not exhaust all the possibilities of improving the anti-knock properties of low octane fuels by destructive alkylation. The optimum conditions of the process are being studied by the authors at the present time.

L. N. Vinogradov participated in the experimental work.

LITERATURE REFERENCES

1. Neft. Khoz. (The Petroleum Ind.) **1935,** No. 8, 40.
2. Groz. Neft. (Grozny Oil Ind.) **1937,** No. 4, 49.
3. Unpublished report of Khimgaz.
4. Ind. Eng. Chem No. 4, April, 1936, pp. 461-4.
5. Zhur. Obsh. Khim. (J. Gen. Chem.) **6,** 423 (1936).
6. Ibid., **6,** 433 (1936).
7. J. Am. Chem. Soc. **57,** 2415 (1935).
8. Zhur. Obsh. Khim. (J. Gen. Chem.) **6,** 1514 (1936).
9. V. V. Ipatiev, Catalytic Reactions, p. 760 (Russian).
10. J. Am. Chem. Soc. 1616, Sept. 1935.
11. Zhur. Obsh. Khim. (J. Gen. Chem.) **5,** (1935).
12. J. Am. Chem. Soc., 1722, Sept. 1935.
13. Neft. Khoz. (The Petroleum Ind.) **1930,** No. 11, 561.
14. Ibid., **1934,** No. 9, 37.
15. Ibid., **1934,** No. 9, 39.
16. Ibid., **1934,** No. 9.
17. TsIATIM Report for 1937.

TABLE 10

No.	Product	Proportion of gasoline to benzene	Amount of $AlCl_3$	Yield %	Solidification temp., C.	Octane number 2 cc./kg. TEL	Octane number 3 cc./kg. TEL
1	Grozny gasoline	1:1	10	61.5	..	..	95.5
2	Synthin, end pt. 175°	2:1	10	63	—45	85	....
3	Synthin, end pt. 220°	2:1	10	57	—53	85	87.5
4	Ishimbaev gasoline, end point 140°C.	2:1	10	58	—47	92	....
5	The same	4:1	10	56	—67	91	....
6	The same	4:1	5	74	—59	89.5	....
7	Ishimbaev gasoline, end point 190°C.	2:1	10	61	—48	90.5	....
8	Ishimbaev gasoline, end point 240°C.	2:1	10	60	—49	91	....

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Petroleum Solvents for Paints Compared by New Solvency Tests

By S. S. Kurtz, Jr.*

A condensation of a paper presented before the Manufacturing Division of the National Petroleum Association in Buffalo, May 21, 1940.

ABSTRACT

With increasingly stringent specifications becoming necessary for motor fuels, interest has been stimulated in the field of special solvents and naphthas as a market for straight-run naphtha and gasoline of low antiknock quality. Recent work on means for evaluating solvency of petroleum and other spirits for the paint and varnish industry has developed test methods which have outmoded the long used nitrocellulose dilution ratio and the Kauri butanol test.

The viscosity of dispersions of resins in petroleum solvents has been found to be a fundamentally sound and practically reliable basis of comparing solvencies of various spirits for particular resins. A graphical method has been developed which is believed to be adequate for the classification of petroleum solvents.

Advantages and limitations of the newer methods are discussed showing that in another year certain doutful points in the present methods of handling the test should be cleared up.

RECENT work on means for evaluating solvency of special petroleum solvents and naphthas for paint and varnish use shows that the viscosity of dispersions of resin in petroleum solvents provides a fundamentally sound and practically reliable method of comparing the solvency of various spirits for a particular resin. A graphical method has been developed which is believed to be adequate for the classification of petroleum solvents.

Two long used tests for solvent power are the nitrocellulose dilution ratio and the Kauri butanol test. These two tests have one thing in common: a resinous or colloidal material is dispersed in a good solvent, and then the liquid under test, which is really a non-solvent for the dispersed material, is added until the dispersed material begins to precipitate.

The nitrocellulose dilution ratio test does approximate requirements of the nitrocellulose lacquer industry but its principal objection is in carrying dilution to the absolute limit. The Kauri butanol test does the same thing but a more serious criticism of it is that it is based on the use of a single resin which cannot represent the wide variety used in the paint and varnish industry today. It is, therefore, of very limited value.

Another type of test for solvent power which has been used rather extensively is the temperature of miscibility of the solvent with a semi-polar compound such as aniline. The aniline point test is simple but is only a rough indication of solvent quality since it is a single property used to characterize a mixture which may contain three components. Miscibility tests in general give only a rough indication of the composition or solvent quality of the hydrocarbon mixture.

Since commercial petroleum naphthas marketed for use as solvents are in general free from olefins, there is a possibility that determination of the relative proportions of aromatics, paraffins, naphthenes and distillation range would provide all the information needed for judging solvency. Considerable work along this line was done by the Technical Committee of the Philadelphia Paint and Varnish Production Club. The method involves removal of aromatics with either silica gel or with 20-30% fuming sulfuric acid. The refractive index is measured before and after removing the aromatics, and the per cent of aromatics is calculated from these data.

There are two fundamental weaknesses of this method. First, there are too many kinds of naphthenes with widely differing refractive indices and second, even if the composition is known in terms of naphthenes, paraffins, and aromatics, it is not yet possible to translate these composition data directly into solvency performance data.

Several Viscosity Tests

Several different groups have recently developed solvency tests based on viscosity of resin solutions. This type of test is more closely related to actual paint and varnish making practice. In the Sun Oil Co. laboratories it was shown that the ratio of viscosities of resin solutions at equal concentrations was a reliable guide to solvency. This generalization was embodied in the definition of "resin solvency" (R. S.) which is given by the equation:

$$\text{R.S.} = \frac{\text{Vis. of Soln. of X\% Resin in Standard Solvent}}{\text{Vis. of Soln. of X\% Resin in Solvent under Test}}$$

The equation has proven a reliable index of solvent power for commercial resins on a cold-cut basis in the absence of any third component. The test is, therefore, clean cut but overly simplified as far as direct comparison to commercial practice in the varnish industry is concerned. Further work is needed to see how much correlation there is between resin solvency data obtained on cold cuts of the resins and the actual solvency of the spirits for a cooked varnish. A program of testing has been planned by the Technical Committee of the Philadelphia Paint and Varnish Production Club which should definitely clear up this point in the course of the next year.

Some work has been done by the Los Angeles Paint and Varnish Production Club with the co-operation of

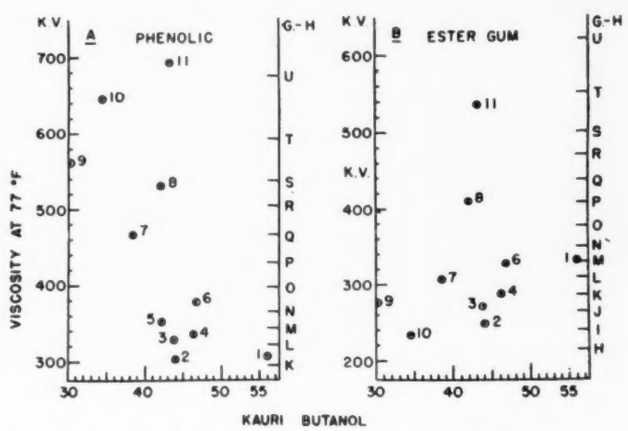
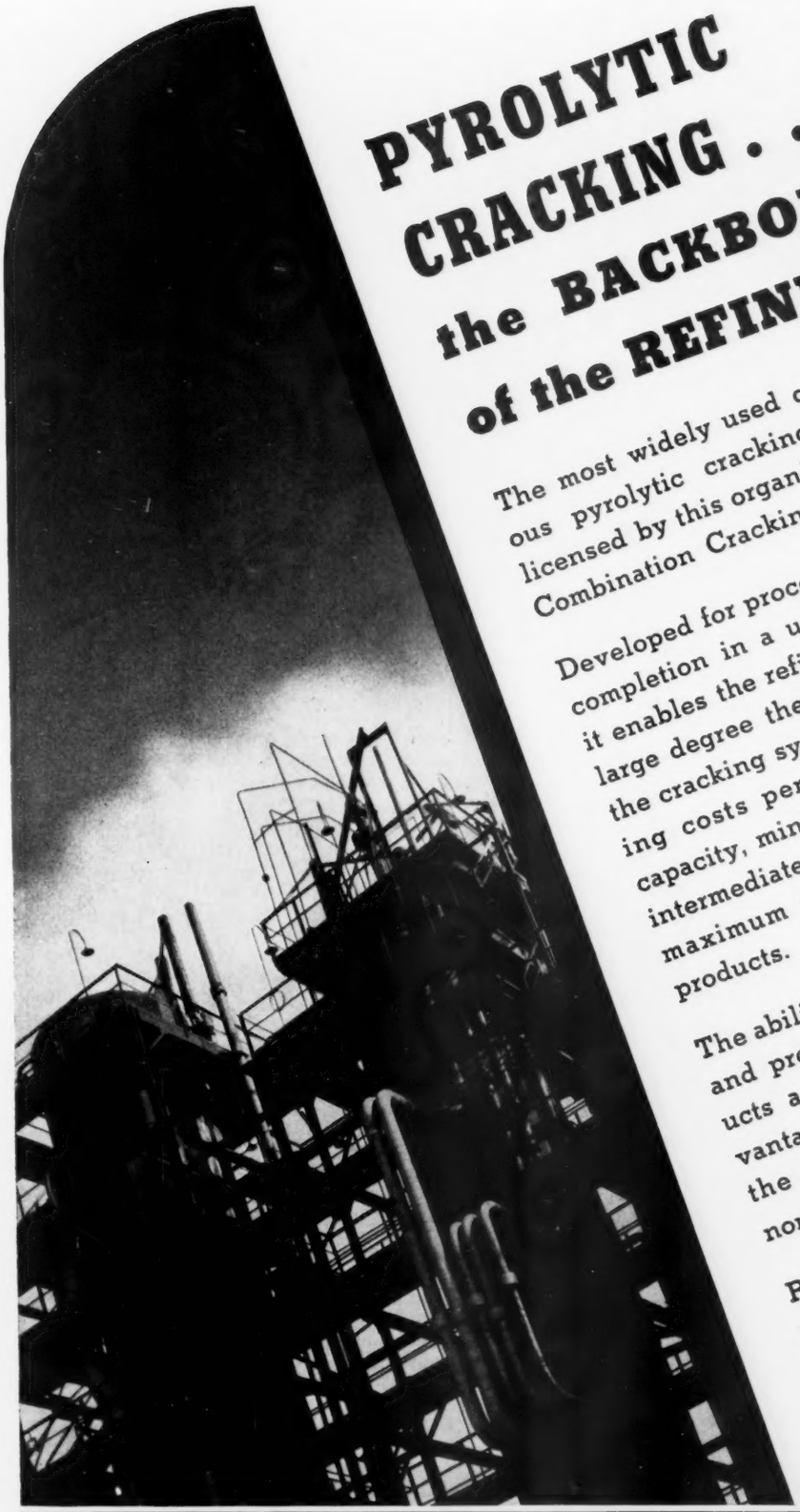


Fig. 1. Viscosity of resin solutions vs. Kauri Butanol number of spirits for Beckacite 1001 and Ester gum No. 6

*Sun Oil Co.



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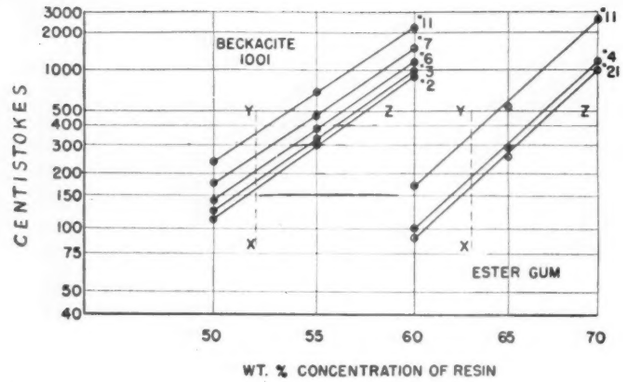

Fig. 2. Viscosity in centistokes vs. concentration of resin, plotted on A.S.T.M. Type C viscosity paper

the Union Oil Co. which followed varnish making practice to the extent of cooking the resin and drying oil together, but the varnish was cooled without thinning. Solvents were then tested by dispersing portions of the cold varnish by heating to 150° F. with spirits, and measuring the viscosity. Two reference solvents were used, namely, toluene and technical iso-octane. The viscosity of the varnish dispersed in a solvent would fall between the viscosity in toluene and the viscosity in iso-octane. Viscosities in iso-octane, toluene, and the sample under examination would be obtained at two or three concentrations and curves of log viscosity versus per cent solids by volume were drawn. Lines were obtained which were approximately parallel and nearly straight in the best cases. In the poorest cases they were considerably curved and crossed.

The final evaluation proposed is to interpolate graphically on the semi-log chart at equal concentration. This method for comparison of solvents comes closer to actual varnish making procedure than any method yet published but still leaves a good deal to be desired because thinning is not done while the varnish is hot and the procedure of rewarming and dispersing the resin at 150° F., and compensating for vaporization losses, is not one that is well adapted to obtaining exactly reproducible results.

To obtain more precise data of this sort, and to correlate these data, if possible, with corresponding data on cold cuts is the objective of the Philadelphia Paint and Varnish Production Club during the coming year.

Test Requirements

In order to proceed in developing a test involving comparison of viscosities of resin solutions, it was necessary (1) to obtain a standard reproducible procedure for preparing resin solution, (2) to have an accurate method of measuring viscosity, and (3) to have a reproducible standard solvent.

The procedure chosen for preparing resin solutions was to weigh sufficient ground resin and solvent into an 8-ounce bottle to make a mixture of 100 grams total weight. A sensitive pan balance was used and weighings were accurate to ± 0.05 grams. Solution was obtained by shaking for 24 to 48 hours on a shaking machine. Kinematic viscosities were determined with the Fenske type of Ostwald viscometer. Viscosities usually checked within 2% on duplicate mixes. Viscometers having outflow times differing in the ratio of 10 to 1 gave check results.

The question of the proper standard solvent was not an easy one. Xylene was first tried but was discarded in favor of an equal component blend of diethylbenzene, decahydronaphthalene, and technical iso-octane. These materials are all available commercially in a reasonable degree of purity. This blend has about the same degree of solvent action as the regular commercial petroleum fractions in which the aromatics have not been enriched by solvent processing. Practically, this means that it responds to variations in different batches of the same commercial resin in about the same way as any commercial spirits would, thus the disturbing effects of variation between different batches of resin can be made to cancel out.

TABLE 1

Viscosity of Resin Dissolved in Spirits No. 1

$$\frac{\text{Viscosity in Other Spirits}}{\text{Viscosity in Spirits No. 1}} = \text{R. S.}$$

	Beckacite 1001	Beckacite 1100	Amberol F-7 light	Glyptal 2464	Ester gum 6	Pliolite
Wt. % resin	55	50	45	50	65	20
Spirits No. 2	101	114	94	77	134	115
Spirits No. 4	92	99	94	75	117	105
Spirits No. 7	66	74	36	41	109	107
Spirits No. 10	48	...	..	..	142	127
Spirits No. 11	45	46	31	33	62	79

In Fig. 1 the viscosity of solutions of a pure phenolic resin and Ester gum are plotted against the Kauri butanol number of the solvents. Point No. 1 is the standard blend and the others are for commercial petroleum spirits of approximately 300-400°F. boiling range. It should be noted that points 2, 3, 8, and 11 all represent solvents having Kauri butanol values between the narrow limits of 42 and 44 cc., yet they represent the lowest and highest viscosities. The Ester gum is similar to that for the phenolic resin except that solvents 9 and 10 which are poor for latter are good for Ester gum. These are relatively paraffinic solvents.

Since what is wanted is a number which will give relative solvent power of the spirits for the resins, a number which satisfies this requirement is:

$$\frac{\text{Vis. of Blend No. 1 x 100}}{\text{Vis. of Resin dispersed in Other Solvents}} = \text{resin solvency}$$

A few viscosity ratios of this sort are shown in Table 1*. Beckacite 1001 is a pure phenolic resin, Beckacite 1100 and Amberol F-7 are modified phenolic resins, Glyptal 2464 is an alkyd or glycerol-phthalate resin, Ester gum is a rosin-glycerine resin, and the pliolite is a thermoplastic rubber. Solvents 2 and 4 are balanced type spirits, solvent 7 is balanced in respect to paraffins and naphthenes, but low in aromatics, solvent 10 is highly paraffinic, and solvent 11 is highly naphthenic.

It should be noted that the three phenolic resins all rate the spirits samples in essentially the same order. The spirits samples which show up well with any one of these three phenolic resins show up well with all of them. These viscosity ratios, therefore, provide a practical means of picking out the better solvents for any particular resin or class of resins.

Effect of Concentration and Temperature

The effect of concentration of resin can be summed up by saying that most of the viscosity data were in the range of 100 to 1000 centistokes, which corresponds to about 10% difference in weight per cent concentration. Within this range, which represents the convenient working range for Ostwald-Fenske viscometers, the concentration at which comparisons are made is not important, provided, of course, that all mixes in any one series have identical concentrations. The resin solvency values of poor solvents (below 60) are not quite as independent of concentration as higher values. The effects of temperature are greater but can be summed up by saying that poor solvents are relatively better at 130°F. than at 77° F.

The constancy of the viscosity ratios at various concentrations may be used as an aid in plotting viscosity concentration data. The accompanying graph (Fig. 2) shows the viscosity data for three concentrations as essentially straight lines on the A. S. T. M. high range kinematic viscosity chart (Chart C, A.S.T.M. D341-37T). Data for Becka-

* Many more are given by Kurtz, Harvey, and Lipken in Ind. Eng. Chem., Anal. Ed., Vol. 11, p. 476 (1939).

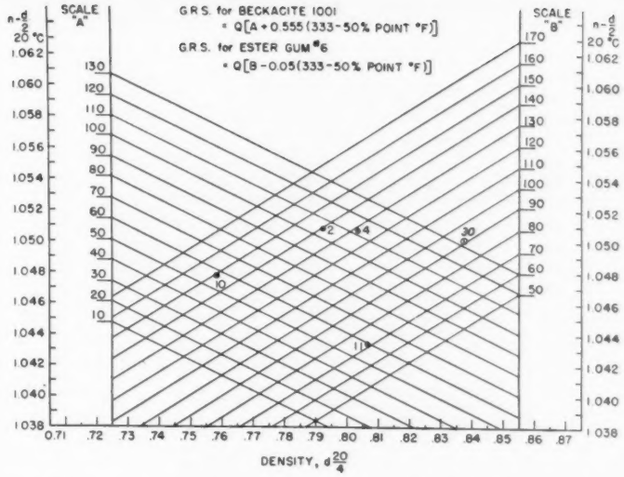

Fig. 3. Resin solvency graph based on density, refractivity intersept, and boiling point

cite 1001 and Ester gum No. 6 are plotted on the section of the graph ordinarily used for 0 to 100°F. The lowest concentration in this series (50% by weight of resin) was plotted on the 0°F. line and the highest concentration (70%) was plotted on the 100°F. line.

For any one resin these lines are parallel. Therefore, if such a line is established with one resin and one solvent, it will be sufficient to determine the viscosity at one concentration with other spirits samples and the same resin. This may not, however, be true for solutions of resins in pure hydrocarbons. The use of the A.S.T.M. graph paper for plotting viscosity concentration data since either viscosity at equal concentration or concentration at equal viscosity can be read from the chart, and the chart can be drawn with a minimum of data and effort.

In the practical study of spirits, it was necessary to determine the effect of variations in boiling point on the solvency of spirits. It was found in these studies that for any one type of solvent the grams of resin per gram mol of solvent will control the viscosity and that there is a linear relation between log of the kinematic viscosity and the molar concentration of resin in the solvent, at least for the range of 150-200 molecular weight. The latter provides an adequate basis for correcting for small variations in boiling point of spirits.

Graphical Method

The experimental determination of resin solvency requires considerable time since resins usually disperse slowly. To obtain good results the work must be done with considerable care and patience.

In order to obtain resin solvency data more quickly, a graph was developed* by means of which resin solvency for Beckacite 1001 and Ester gum can be determined if the density and refractive index at 20°C. and 50% A.S.T.M. boiling points are available. This graph is shown in Fig. 3. The primary co-ordinates are density and refractivity intercept, i.e., the refractive index minus half the density, both at 20°C.

The A and B scales give the actual resin solvencies for Beckacite 1001 and Ester gum if the 50% boiling point of the spirits is 333°F. If the 50% point is other than 333°F. the solvencies are obtained by substituting A or B and the 50% point in the equations at the top of the graph. The term Q, a function of boiling point which allows for the effect of boiling point on molar concentration of solvent, is taken from Table 2.

The five points on the graph cover the range of commercial petroleum spirits now on the market. Points 2 and 4 represent approximately balanced spirits. Point 10 is a highly paraffinic spirits and point 11 is a highly naphthenic spirits. Coal tar solvents would be in the upper right-hand

* Ind. Eng. Chem., Anal. Ed., Vol. 11, p. 484 (1939).

TABLE 2

Q Factor for Effect of Molecular Weight in Calculation of Graphic Resin Solvency for Beckacite 1001 and Ester Gum 6

Boiling points °F.	Q	Boiling points °F.	Q
333	1.00	333	1.00
334	.99	332	1.02
335	.97	331	1.03
340	.90	330	1.05
345	.83	325	1.13
350	.77	320	1.22
355	.71	315	1.31
360	.65	310	1.41
365	.60	305	1.52
370	.55	300	1.64
375	.50	...	...
380	.46	...	...
385	.42	...	...
390	.48	...	...
395	.34	...	...
400	.30	...	...

corner of the graph. Point is essentially a mixture of aromatics and naphthenes with little or no paraffins.

As an example of the use of this graph, take point 10 which represents a paraffinic spirits having a 339°F. 50% point. The A-scale value corresponding to this point is 57. Substituting these two values and a Q value of 0.92 in the Beckacite equation gives 50. This graphic value is 2 units above the experimental value.

Tables 3 and 4 give graphic and experimental resin solvencies for the points on the graph and for solvent 7 which is low in aromatics, but approximately balanced in regard to paraffins and naphthenes. More complete tables show few solvents deviating more than 10 units between graphic and experimental data. The graphic resin solvencies are believed adequate, therefore for the classification of petroleum spirits.

TABLE 3

Comparison of Graphic and Experimental R. S. for Beckacite No. 1001

Solvent Type	No.	50% B.P.	Experimental R.S.	Graphic R.S.	Difference
Balanced	2	333	101	105	+4
Balanced	4	341	92	96	+4
Medium Paraffinic	7	338	66	63	—3
Paraffinic	10	339	48	50	+2
Naphthenic	11	340	45	50	+5

Total number examined = 36.
Deviations + = 19 samples.
Deviations — = 14 samples.
Deviations 0 = 3 samples.
Average deviation for 36 samples = 4.

TABLE 4

Comparison of Graphic and Experimental R. S. for Ester Gum No. 6

Solvent Type	No.	50% B.P.	Experimental R.S.	Graphic R.S.	Difference
Balanced	2	333	134	139	+5
Balanced	4	341	117	114	—3
Medium Paraffinic	7	338	109	108	—1
Paraffinic	10	339	142	136	—6
Naphthenic	11	340	62	65	+3

Total number examined = 25
Deviations + = 11 samples.
Average deviation for 25 samples = 5.
Deviations — = 14 samples.

As pointed out earlier, a legitimate criticism of the method is that the relative solvent power of spirits for resins have been determined on a cold-cut basis in the absence of any third component. Further work is needed to see how much correlation there is between resin solvency data obtained on cold cuts of the resins and the actual solvency of the spirits for a cooked varnish. A program of testing is in progress which is expected to clear up this point in the course of next year.

* Table 3, p. 484, Vol. 11 (1939), Ind. Eng. Chem., Anal. Ed.

A.S.T.M. Standards Activities Break Records at Annual Meet

WITH a record-breaking attendance of 1441 and more new specifications and tests approved than at any other meeting, the 1940 annual meeting of the American Society for Testing Materials at Atlantic City June 24-28 was marked with intense activity. An indication of the activity in standardization and research in materials was shown, not only by the 22 formal technical sessions, but also by the more than 250 committee meetings in progress throughout the five days of the meeting. Over 110 papers and reports were presented at the sessions.

In the field of standardization, now tentative standards totaling 77 were approved, the largest number yet acted on at any annual meeting. The number of existing specifications adopted as standard totaled 40. While this is less than in 1939, last year the Book of Standards was issued and in these years the number of tentative specifications advanced to standard is always higher.

Two significant addresses on specifications for materials were highlights of the meeting. The first, H. H. Morgan's presidential address, stressed the commercial importance of specifications. The second, by Lt. Col. W. C. Young of the War Department, indicated their significance in national preparedness.

Committee D-2 Reports

An extensive report was submitted by Committee D-2 on Petroleum Products and Lubricants and a number of important recommendations were included. Three recommendations were for new tentative standards: first, a test for carbonizable substances in white mineral oil (liquid petrolatum) to ascertain whether it conforms to the standard of quality prescribed by the U. S. Pharmacopoeia. Tables and equations are included for a new method of calculating viscosity index of a petroleum product or lubricant from its viscosity at 100° and 210° F.

In connection with work on aniline point, the subcommittee in charge prepared a proposed method of test which is published as part of the report for information only. No action has been taken to refer it to the society for approval. In 1938, there was published in connection with the committee report proposed methods of test for ignition quality of diesel fuels and classification of diesel fuel oils. Because of revisions which have been developed, these two items are again published as information.

A number of other recommendations by Committee D-2 were approved including revisions of nine standards and tentative standards. Two items are to be referred to the society letter ballot for adoption as standard. These are the test for unsulfonated residue of plant spray oils (D 483—38T) and specifications for stoddard solvent (D 484—38 T).

Asphalt Problems Considered

In a paper on "Rheological Interpretation of Asphalt Tests" by R. N. Traxler, H. E. Schweyer, and J. W. Romberg, The Texas Co., it was concluded that, with the exception of the ring and ball softening point test for certain asphalts, the empirical flow tests in common use cannot be used to evaluate the flow properties in absolute units with any degree of precision. It was recommended that the

Compare Pennsylvania Oils In Extensive Engine Tests

Results of extensive engine tests of eight motor oils produced by variations in refining technique were published recently at Pennsylvania State College Bulletin No. 50. The report was prepared by H. A. Everett, head of the Department of Mechanical Engineering, and G. H. Keller, research assistant.

The general technique of earlier studies was employed with some modifications and improvements, "notably, refinements in the determination of oil consumption, a closer control of air-fuel ratio, and better control of the quantity of oil circulated and the oil temperature." The duration of test was extended from 8 to 24 hours.

"The general plan of the work was to test each oil in four engines.....under uniform operating conditions and to determine the oil consumption, wear, carbon deposition, and deterioration data of the used oil. The final results (summarized in the accompanying table) are presented as ratios between the performance of the test oil and the performance of a reference oil under the same conditions of operation."

The oils are all from Pennsylvania crude and matched to a viscosity at 130° F of 212 SUS corresponding to SAE 30. They include various combinations of solvent extracted and conventionally refined neutrals and bright stocks. A 40-page bulletin containing full details of the tests is available at 50 cents.

	180 Neutral (C.R.) Bright Stock (C.R.)	180 Neutral (S.Ex.) Bright Stock (C.R.)	150 Neutral (S.Ex.) Bright Stock (C.R.)	180 Neutral (S.Ex.) Bright Stock (S.Ex.)	180 Neutral (C.R.) Bright Stock (Overhead)	180 Neutral (C.R.) Bright Stock (Extra Hvy.)	180 Neutral (C.R.) Bright Stock (S.Ex.)	180 Neutral (C.R.) Bright Stock (Highly Filtered)
Oil Consumption	1.00	0.94	1.00	1.03	0.93	1.11	0.86	0.87
Wear	1.00	1.21	..	1.01	0.91	0.94	0.88	0.94
Carbon	1.00	0.97	1.12	0.86	0.82	1.19	0.95	0.93
Viscosity Rate	1.00	0.88	0.79	0.99	0.90	1.25	1.10	0.93
Sludge-Naphtha Insol.	1.00	0.59	0.77	0.37	1.05	0.58	0.70	1.02
Sludge-Chlor. Sol.	1.00	0.53	0.72	0.40	1.56	0.40	0.60	0.67
Neutralization No.	1.00	1.21	1.27	1.34	0.86	0.93	1.13	1.03
Oiliness Number (Bradford-Timken)	1.00	0.96	0.88	0.85	1.03	0.98	0.98	1.04

rheological methods be substituted for these empirical tests to simplify laboratory testing for both consumer and producer since less complicated specifications would be necessary. For example, the use of 3 or 4 measurements of viscosity over the range from service to application temperatures would determine the effect of temperature on flow properties. Such determinations in absolute units define the flow characteristics quantitatively and do not require comparisons with results from other tests.

T. F. Ford and K. G. Arabian, Shell Development Co., discussed "The Measurement of the Deformation Properties of Asphalts" describing a new instrument of the rotating cylinder viscosimeter type designed for routine use. Results obtained using this instrument compare favorably with results obtained using a more elaborate conicylindrical viscosimeter, it was said. Since a single deformation constant such as viscosity is inadequate to describe the flow of plastic asphalts, three deformation constants are evaluated: a coefficient of viscosity n, a coefficient of elasticity in shear g and a coefficient of internal slip s. The values of these constants were found to be relatively independent of the driving load, for the asphalts and other plastic materials tested.

In a paper on "The Mechanics of Granular and Granular-Plastic Materials with Special Reference to Bituminous Road Materials and Subsoils," V. A. Endersby, Shell Development Co., described apparatus and results in a series of triaxial tests using the Mohr Circle diagram. The author stated that the problem of learning the true binding power in a given asphalt in a bituminous mix involves a thorough investigation of the stability of the aggregate itself.

He concluded that for correct analysis of the stability of granular and granular-plastic materials it is necessary to recognize and measure a type of structural resistance which is dependent on the specimen dimensions, and that the measurement must be done under dimensional conditions correctly related to actual loading conditions.

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This index is published as a convenience to the reader. Every care is taken to make it accurate, but National Petroleum News assumes no responsibility for errors or omissions

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Reduces Sulphur Content More Than 90%

Cuts Refining Costs

CATALYTIC DESULFURIZATION units, constructed in accordance with plans and specifications prepared by PERCO engineers, are reducing the sulfur content of gasoline stocks as much as 90 per cent or more. Consequently the octane number improvement reduces the refining costs of the finished motor fuels appreciably.

In connection with your antiknock problems, let us show you the advantages of Perco Catalytic Desulfurization. The simplicity of operation, the long catalyst life, and the efficient removal of sulfur are important advantages providing a high return on a small capital investment.

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Bartlesville, Oklahoma

You Can't Sell 'em Lube Jobs If You Don't Ask 'em

No. 3 Article in NPN's 1000-Mile Lube Sales Campaign

Here is the testimony of car owners as to how negligent service station attendants and dealers are in ASKING the car owners to buy lubrication at any time, let alone every 1,000 miles,—

93.5% of the motorists WANT their oil checked at service stations, —and

44% of motorists say they BELIEVE they should change their engine oil every 1,000 miles,—and

45% say they THINK their car chassis should be lubricated every 1,000 miles

B U T —

77.2% of the motorists testify specifically that the men at the service stations DO NOT ASK for their lubricating business.

The FAILURE of the station operators to check the oil level and to ask how far the car has been driven since the last oil drain, or the last chassis lubrication, is all that stands in the way of MORE LUBRICATION SALES by oil marketing companies.

These facts on the extent to which car drivers wish service stations to watch the condition of their cars as regards lubrication, have been established many times before, in surveys of buying habits of motorists which the oil companies and outside agencies have made. They are borne out again in a recent survey of Socony-Vacuum Oil Co.

Of the motorists who were interviewed in the Socony-Vacuum survey, 93.5% listed checking the oil as among the free services they wanted at service stations. Three other important services, filling the radiator, checking air in the tires and cleaning the windshield, were rated only slightly more desirable to the car owner's driving comfort. The oil company's survey was made among over 2000 motorists, in a territory that was typical of all classes of station trade. It included factory workers, farmers, suburban and city dwellers. All makes and models of cars were checked, using many brands of motor fuel, oil and grease.

In another recent survey, made by a research agency among 1018 men drivers and 1093 women drivers, checking the oil level was rated second most important, wiping the windshield being the only free service more preferred. Of the men drivers, 65% said they wanted the oil checked at the station and of the women 60%. These car owners were asked what they liked about the service they got at gasoline stations. The question in the Socony-Vacuum survey was more definite on this point, asking: "What free services do you want?"

However, keeping in mind that 93.5% of the car owners interviewed by Socony-Vacuum said they wanted their oil checked, the survey crews learned, by watching the service given at hundreds of driveways, at large and small stations, that the oil was not checked on 53 out of every 100 cars driving in. They also learned that one-third of the gauge bayonets pulled out by the station man to check the oil, were put back again without showing them to the customer.

It was also learned that, out of every 100 cars stopping for gasoline, 40 needed oil and 60 didn't. Of the 40 needing oil, 10 bought crankcase changes. Fourteen of the remaining 30 cars bought make-up oil, but 16 cars drove out still needing oil.

On the question of how they bought oil changes, three-fourths of the motorists interviewed in the Socony-Vacuum survey said they changed their oil by mileage intervals, thus indicating how important it is for the station salesmen TO ASK HOW FAR THE CAR HAS BEEN DRIVEN SINCE THE LAST OIL CHANGE. The other quarter of car owners interviewed said they bought on a time basis, as once a month, or once in 2 months, or that they had no regular basis for buying lubrication.

Car owners were asked the question; "How many miles do you think you should go between drains and refills of your crankcase?"

Nearly 44% believed they should change their oil every 1000 miles, 31% believe they should change at 1500 miles at the most. Only 6.6% answered that they believed they could drive over 2100 miles without the possibility of damage to their cars.

Over 53% of the car owners interviewed said they thought the brand of motor oil they selected for their car was more important than the brand of gasoline they used. Only 10% said they considered the brand of gasoline more important than the oil; 35% said they believed they were equally important to the proper operation of the car.

The checkup of motorists' buying habits also showed that the great proportion of car owners believe they should have their car lubricated every 1,000 miles at least . . . and that the reason they do not is because the lubrication job is not solicited at the station.

To the question, "How often do you think your car should be lubricated?", 45% said, every 1000 miles or less and 24% said from 1250 to 1500 miles. Only 7% said they they believed their car should go 2750 miles or over without a chassis lubrication.

However, to the question, "Does the dealer who lubricates your car ask you for this business?" 77.2% of motorists interviewed said, "No". In other words, 3 out of 4 station customers make up

Checking the oil and showing the customer the level is still one of the best sales approaches

NOW! 4th of JULY SPECIAL
CHASSIS LUBRICATION AND CAR INSPECTION
FRONT WHEEL BEARING SERVICE
TIRE CHECK-UP & SWITCH
ALL FOR $2.19

This "special" on lubrication, at a station of the Elk Filling Corp., in Buffalo, brought in extra business from motorists planning a trip over the Fourth

their own mind when their car should be greased and come into the station and ask for this service, rather than being sold by the station.

"Why do you have your car lubricated," was another question asked in the Socony-Vacuum survey, to bring out the principal reasons that prompt a car owner to buy a chassis lubrication job. In order of their importance to the motorist here are the reasons they gave:

"To remove squeaks."

"To prevent wear."

"For safer driving."

"For easier steering."

"For easier riding."

Only 8% of motorists answering this question gave as a reason for their buying a grease job that they had been reminded of the need for it by a station attendant.

Questions were asked to bring out whether chassis lubrication jobs influenced oil changes and it was learned that 46% of motorists had their oil changed when their car was greased and 21% said they changed the oil about every other time they bought a grease job.

In answer to the question as to whether they had their car lubricated at the same place they bought motor oil, 74% replied they did, indicating that, if the service station is regularly selling a customer oil changes, at least in three-quarters of the cases it should also be able to sell a grease job.

Sales Ideas to "CASH IN" On Summer Lubrication Trade

HERE are special sales ideas for summer oil selling—

Offer "lubrication specials", consisting of various services to the car, with bargain and lump-sum price plainly marked.

Use the studied and skilled approach, of checking the oil then asking the much-tried questions that generally lead to making an oil sale.

Make it convenient for the motorist to buy lubrication service and make him comfortable.

Dig extra lubrication sales out of the station's customer records.

These are among the sales methods oil company stations are using this summer, to increase their lubrication business from their regular customers.

Managers of these stations tell NATIONAL PETROLEUM NEWS they believe that oil changes and chassis lubrication jobs can be sold to many customers at 1000-mile intervals, while these customers in the past have been buying at much less frequent intervals. They find it more profitable to cultivate this extra business among their regular trade than to go out after entirely new customers.

Following are some of the practices stations are using to get more lubrication business, as described to NPN:

Digging Lubrication Sales From Customer Records

To be of full value to the station salesmen in getting more lubrication business into the station, the follow-up, or record card, for each car customer should give the following information, practice at many stations shows:

1—Is he a regular gasoline customer and does he have his lubrication work done at the station?

2—If not, what is the reason for his patronizing another station for this work?

3—Does the chassis lubrication customer always have his oil changed at the same station?

4—If not what is the reason he buys his oil elsewhere?

5—Is it the customer's practice to have the crankcase flushed when he changes his oil?

6—What are the customer's preferences and habits as to intervals between oil changes and chassis lubrication?

The customer's record card should always be consulted when the car is brought in for servicing and before the job ticket is made out, say stations which are successful in selling lubrication work. This refreshes the station man's mind on the customer's buying habits and on special needs of his car which may otherwise be overlooked.

How to Increase Sales With Lubrication "Specials"

Special service offers that mean something to the motorist but that do not take much time or materials, are used at some stations with good results. These practices on "specials" follow:

1—Give the "special" a name. A good title catches the motorist's attention and is easy for him to ask for. Make the name timely if possible, linking it with a current holiday or some other seasonal event with which motorists are familiar.

2—List separately all the operations included in the special. Set each apart in a paragraph. Be definite as to just what each one includes. Don't leave it to the car owner to guess as to what is offered.

3—Show the complete price of the special and make it a bargain price, such as $2.19 or $1.98 rather than an even amount. When the price is not plainly shown, the motorist may hesitate to ask for fear that the price may be more than he can afford.

4—Change the special frequently. When the car owner sees it day after day, it begins to look like a regular offer.

One oil company, the first few days in July, sold a "Fourth of July" Special for $2.19. It included:

Chassis lubrication and oil inspection (not an oil change).

Front wheel bearing service.

Tire check-up and switch of tires to other wheels where wear is shown.

Another offer at this station included:

Chassis lubrication.

Front wheel bearing lubrication.

Air filter service.

The price for this "special" was $1.98.

Call the Customers by Name

Knowing the names and buying habits of regular customers, so they can be addressed by name and with knowledge of their preferences in buying lubrication, is a practice at many successful stations.

Greet the customer by name, as soon as he comes into the station is the rule. If his car cannot be serviced at once because the station crew is busy greet the new customer and tell him it will be only a moment until someone will take care of him.

The following rules are used by some marketing companies to help the station men identify customers by name:

1—First be sure to understand the customer's name. Repeat it after the owner, and if you are not certain, ask if your pronunciation is correct.

2—Print the name clearly on the

Products in season

Motorists are burning more gasoline this summer than ever before and the heavy gasoline stocks are going down—2 million barrels in a single week

There's a temptation to run too much crude to make the extra gasoline you need, but that leads to trouble It makes too much of other products that you *don't* need—gas oil and distillate stocks are climbing right now

Here's the answer

In the motoring season, make the highest possible yield of premium gasoline from the crude you run—and the least of other products

Dubbscracking is the way to do that

In the heating season just turn it around Make the highest yield of premium furnace oil and the least gasoline

Dubbscracking is the way to do that, too

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Happy New Year

You can start a happier New Year anytime in the year by using Master Motors built to meet exactly your individual requirements. Thousands of men like you have found that they can make their equipment more compact, lower its cost and improve its appearance and safety by using Master Motors that really fit their job.

You, too, can easily secure these advantages. Next time you need motors for your plant or your product, investigate the unusual ability of the Master organization to serve you promptly and economically.

THE MASTER ELECTRIC COMPANY • DAYTON, OHIO

lubrication job ticket. Printing the name helps to fix it in a man's mind. Ask the owner about the spelling, if there is any doubt.

3—Repeat the name several times during the sales interview. This helps to fix it in the mind.

4—Review the names of all customers who have been served, at the end of the day. Keep a list of the names of customers served or check them back through the job tickets. Repeat the names of the customers and try to identify each name with the appearance of the individual.

Keep Tab on How Often Customers Come in

Some stations use a simple but effective way to keep track of which regular customers are coming in for lubrication service. All the equipment needed is a 10c notebook.

The names of the customers are listed in alphabetical order, showing also their address, telephone number and car license number. The pages with the names are ruled so that there is space on the line with the name to check for the 1st and 15th of the month for several months.

As regular customers come in, a check is made in the space for that half of the month. If they do not come in, an "o" is entered in the space. With this method, twice a month it is easy to make a check on what regular customers have been in for lubrication service. Where customers have not come in, the record cards are checked to determine if follow-up calls should be made, or some other sales approach taken.

Don't Hesitate— Check the Oil Level

Many sales of oil drains and "make-up" oil are lost because the station man waits for the customer to ask him to check his oil. Most oil marketing companies believe it is sound practice for the station operator to realize that he is doing the customer a service in checking his oil—and to proceed to do so without waiting for word from the customer.

Where the customer does show impatience, or says that the oil was recently checked, the operator is instructed to pull the hood down and say to the car owner: "I was going to check the oil for your protection."

When the oil is checked and the bayonet shows the oil level is low, the following questions are logical and give the station man a lead for his sales talk:

"How far have you driven on this oil?"

"How far do you usually drive between drains?"

"What brand of oil are you using?"

The answers to the first 2 questions tell the station man whether he should sell an oil drain, or a definite amount of "make-up" oil. The answer to the third question gives a chance to sell oil in the same price class as the motorist prefers to use.

Many stations believe it is not good practice to comment on the color of the oil as shown on the bayonet, as that does not always indicate how long the oil has been in service or its condition. The operator may find he is trying to sell an oil change to someone who bought a complete new oil fill only a short time before and has driven only a few hundred miles.

When the new oil, either a complete fill or "make-up" oil has been put in the crankcase, it is good practice to check the oil level and show the gauge stick to the driver with some remark, as, "Your gauge now shows just over full", or whatever the condition is. There are good reasons for this check after the sale has been made. First, the customer then knows he has received the full amount of oil he paid for. Second, a careless check at some other station, a short time later, may indicate a low oil level and the customer may think he was not given full quantity when he made his refill. Again, his oil may use up faster than he thinks it should, and he may question whether he was given the full amount on his last drain.

Make Customer at Home

When the customer is going to wait while his car is lubricated, be sure that there is a place for him to sit down if he wants to. Don't assume that he will feel free to use a vacant chair unless it is plainly in a waiting room. Tell the customer the chair is for his convenience. Place it so he can watch his car being serviced, if he desires.

If the customer is a woman, escort her to the chair and make sure it is clean. Wipe off the seat if there is any doubt.

If the customer shows interest in the lubrication servicing, make it a point to demonstrate some part of the job that shows why your service, because of the equipment, or lubricant, or the way the work is done, is superior to that offered at other stations.

Change the Oil First

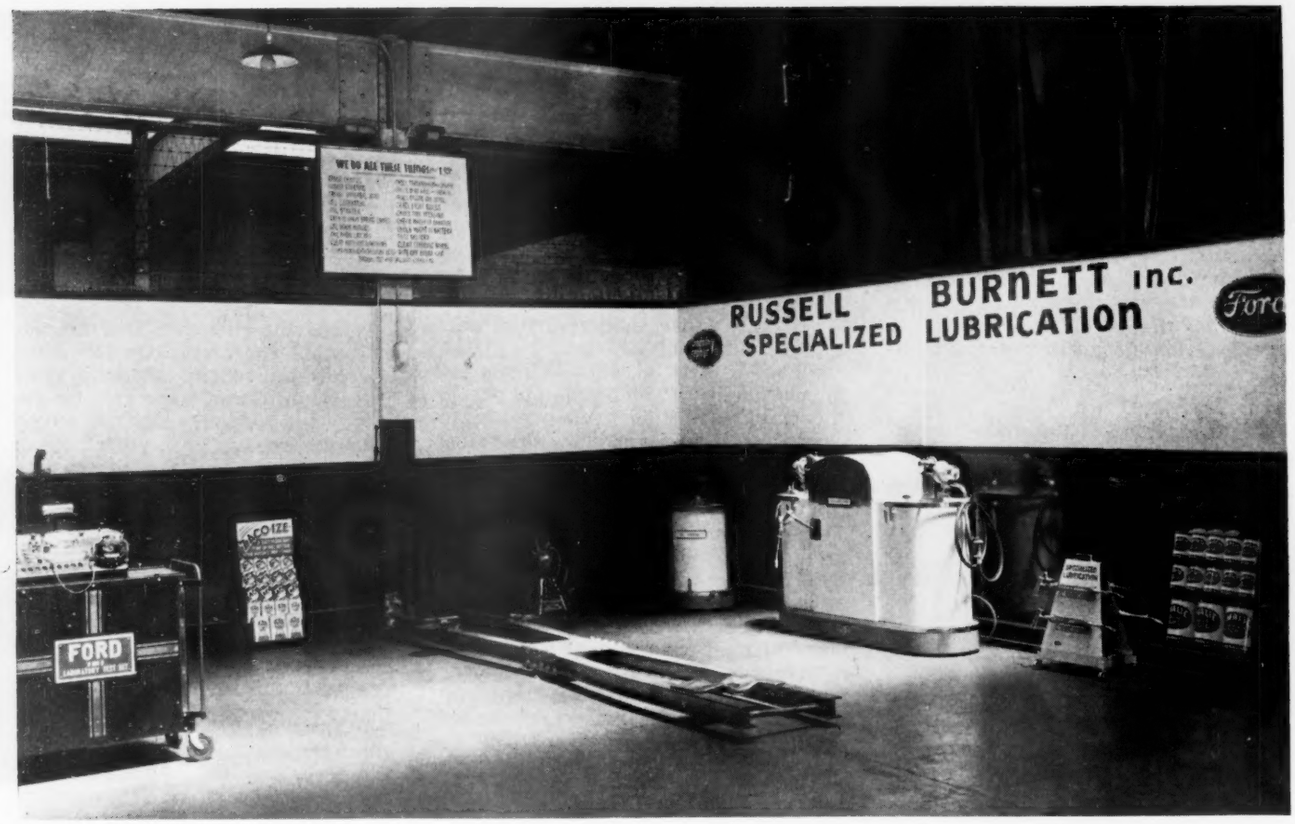
Where the customer has decided to wait while the lubrication job is done, and has ordered an oil drain with a chassis lubrication, some stations make it a practice to change the oil soon after the car has been put on the lift. This procedure satisfies the customer at the start that an important part of the work has been done. Also, in the event he becomes in a hurry before the chassis job is done, the oil change is sold. Otherwise, the customer in a hurry may decide to let the oil drain wait until another time.

Showmanship

A practice in some lubritoriums where the customer is watching his car being serviced, is to shine up the body hardware early in the job, or to perform some other service that is an "extra" to a chassis lubrication.

The customer is apt to watch, with considerable attention, at the start of the work and if he sees some service being performed that is overlooked in some stations, as polishing the door handles, he is impressed with the thoroughness of the job. This same work may be done later, yet be overlooked by the customer who has become tired and is not following details of the servicing.

This sign and equipment display help sales of front wheel bearing lubrication at one station



The above picture illustrates how car dealers are utilizing the showmanship of modern equipment, and clean, attractive lubrication departments. This is a far cry from the old repair shops formerly found in the back of the agency's showroom

Car Manufacturers Aid Their Dealers In Fight for Lubrication Business

"Keep them coming back".

With this as their battle cry, car dealers are making a more vigorous effort than ever this year to "corner" the car lubrication business.

Dealers are campaigning to gain as complete control as possible of the selling of lubrication, oil drains, as well as accessory equipment to the motorist. Their program can be likened to a pincer movement, in modern warfare.

In the flanking operation, oil industry stations are faced on one side with modern, attractively set-up service shops of car dealers, and on the other by aggressive merchandising programs, featuring the preselling of lubrication and oil drains to purchasers of cars, and the energetic follow-up of all customers.

This big drive for lubrication business is organized and produced by the car manufacturers. They are confronted with the serious problem of helping their dealers make a profit, despite decreasing sales margins and the evils of "trade in" allowances for old cars. Difficulties of making profits in the car dealer business have become so great that car dealers, through their own organizations, have made many protests to federal officials at Washington, have sought national lawsuits and legislation and in some states have caused the adoption of laws licensing and limiting the entry of people in the car selling and servicing business.

But profits are still hard to get, and to date no way has been found to prevent a car dealer from making too large allowances for old cars in order to make a sale. Many car dealers still confuse sales with profits, regardless of the size of the "trade-in" allowance.

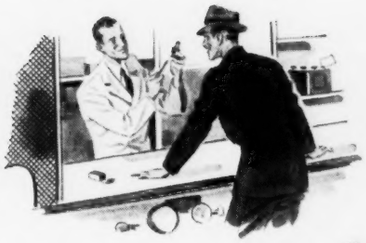
So the automobile makers are trying to help their dealers to make as much revenue as possible from the lubrication servicing department.

Modern merchandising campaigns have been developed, which car dealers are utilizing. Manufacturers have recommended standards for equipment and services for lubrication departments—standards which dealers are following.

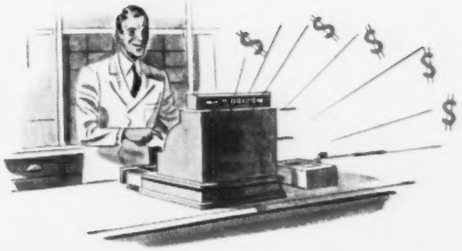
No altruism motivates automobile manufacturers in strengthening their dealers' service departments. They are frank to admit that their only interest is to see that profit from the service department carries a greater portion of the agency's fixed overhead.

Car manufacturers are alive to the fact that more cars are sold in the service department than on the show room floor. They are urging automobile dealers to cultivate regular and frequent contacts with car owners, who are also prospective automobile purchasers.

Probably the most effective method recommended by car manufacturers, now being used by their dealers to cultivate service from purchasers, is preselling lubrication and oil drains contracts, and offering "free" lubrication service. This assures return of the



Sell Champion Spark Plugs and Keep Your Pot of Greater Profits Boiling



IT IS COMMON KNOWLEDGE that it is easier to keep a pot boiling than it is to bring it to a boil. That's why most successful dealers are finding it more profitable to sell Champion Spark Plugs, and for more reasons than one.

For over 30 years the Champion Spark Plug Company has fed the fire under your pot of greater profits and has kept it boiling to assure you of more dollars in your cash register every year. And you can depend on these extra profits year after year.

10 REASONS FOR CHAMPION'S EXTRA PROFITS

1 Highest Quality.
2 Most Dependable Performance.
3 Exclusive Sales Features.
4 Sales Exceed All Other Makes Combined.
5 Great Opportunity For Sales.*
6 Most Widely Advertised.
7 Greatest Consumer Acceptance.
8 Best Point of Sale Advertising and Display Material.
9 Super Sales Service Unit.**
10 Small Investment—Faster Turnover—Bigger Profits.

***THERE IS ALWAYS AN OPPORTUNITY TO SUGGEST NEW CHAMPIONS WHEN YOU—**

1 Check Oil and Oil Filter.
2 Install New Fan Belts.
3 Install New Batteries.
4 Install New Coils or Condensers.
5 Install New Radios.
6 Tune or Repair Engine.

****Super Sales Service Unit.**
A Real Spark Plug Salesman.

CHAMPION

SPARK PLUGS

CHAMPIONS EXCEL AND OUTSELL THROUGHOUT THE WORLD!

customer to take advantage of something he has paid for. Too, free service, as outlined below, also has been effective in returning customers to the car dealers' service departments.

Car dealers report that manufacturers have developed a wide variety of pre-selling plans. Nearly all offer from 5 to 12 chassis lubrication jobs at flat prices, with the cost added to the purchase price of the car. These costs are at lower figures than the price of the work, when purchased individually from the car dealer.

Offers of car dealers range from 6 chassis lubrication jobs for $3.40; 6 for $3.90; 5 for $3.50; to 6 lube jobs, and one wheel pack for $4.25. Service managers of car dealers feel that if they cannot make a regular customer out of a motorist after servicing his car 6 or 10 times, they never will.

Ford Motor Co. recommends a 10,000-mile lubrication plan. Actually, all this amounts to is the selling of 10 lubrication jobs, one every 1000 miles, at the time the car is purchased. The cost of 10 chassis jobs under the plan is generally $5. This is a saving to the motorist of from $2.50 to $5 for the total, as most dealers charge 75c or $1 for each job, when purchased individually.

50,000 Miles of Free Lubrication

The new plan of the Oldsmobile Division of General Motors is called "50,000 Mile FREE Chassis Lubrication Plan." It provides new car buyers with 50 free chassis lubrication jobs, one every 1000 miles—if the buyers agree to purchase motor oil every 1000 miles, transmission and differential lubes every 10,000 miles, and wheel packs at 5000-mile intervals, from the dealer.

No guarantees of performance are included in the agreement. However, the agreement's wording emphasizes the quality of workmanship in the dealer's service department. For example, one states: "Our factory-trained mechanics are experts in the correct lubrication of your Oldsmobile car. We have special equipment and proper lubricants necessary for lubricating your car in accordance with factory recommendation".

50,000-Mile "Free" Chassis Lubrication Plan of Oldsmobile

Oldsmobile dealers present new car purchasers with a lubrication schedule covering 50,000 miles of driving. It provides for free chassis lubrication every 1000 miles, but the car owner must buy a complete oil change at the same time and also must buy a change of transmission and differential lubricants, repack front wheel bearings and change the Hydra-Matic drive fluid at the driving intervals specified in the schedule.

CHASSIS LUBRICATION SCHEDULE

	Free	Owner Expense						Free	Owner Expense					
	Lubricate Chassis	Change Engine Oil	Change Hydra-Matic Drive Fluid	Repack Front Wheel Bearings	Change Transmission Lub.	Change Differential Lub.		Lubricate Chassis	Change Engine Oil	Change Hydra-Matic Drive Fluid	Repack Front Wheel Bearings	Change Transmission Lub.	Change Differential Lub.
1,000	X	X					26,000	X	X				
2,000	X	X					27,000	X	X				
3,000	X	X					28,000	X	X				
4,000	X	X					29,000	X	X				
5,000	X	X	X	X			30,000	X	X	X	X	X	X
6,000	X	X					31,000	X	X				
7,000	X	X					32,000	X	X				
8,000	X	X					33,000	X	X				
9,000	X	X					34,000	X	X				
10,000	X	X	X	X	X	X	35,000	X	X	X	X		
11,000	X	X					36,000	X	X				
12,000	X	X					37,000	X	X				
13,000	X	X					38,000	X	X				
14,000	X	X					39,000	X	X				
15,000	X	X	X	X			40,000	X	X	X	X	X	X
16,000	X	X					41,600	X	X				
17,000	X	X					42,000	X	X				
18,600	X	X					43,000	X	X				
19,000	X	X					44,000	X	X				
20,000	X	X	X	X	X	X	45,000	X	X	X	X		
21,600	X	X					46,000	X	X				
22,000	X	X					47,000	X	X				
23,000	X	X					48,000	X	X				
24,000	X	X					49,000	X	X				
25,000	X	X	X	X			50,000	X	X	X	X	X	X

The value of appearance in merchandising car lubrication can be seen in the "before" and "after" pictures of the Watkins Motor Co., El Paso, Tex., shown above. The lubrication backdrop in the "after" picture provides space for oil cans, drums and measures which had littered the floor. Removing cabinets and work benches to other sections of the shop also add to its attractiveness. Painting of the lifts and floors, and "spotting" the lift on the floor, and cleaning and painting of the lubrication equipment all lend to their merchandising appeal.

The contract form on which the plan is offered makes much of the 1000-mile inspection, offering services, which—with exception of the road test for riding performance—are standard in every well-run oil service station. They include, checking windshield wiper, battery and radiator fluid level, tires, lights, as well as cleaning windshield, headlamp lens and door glass.

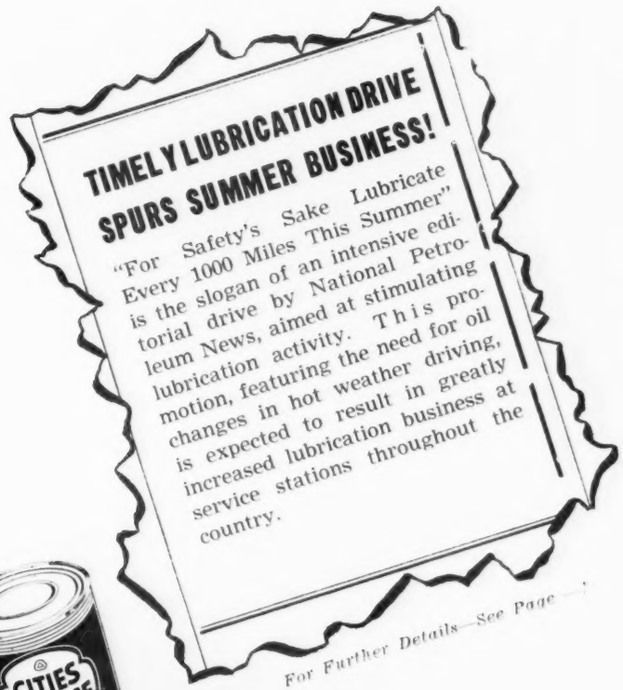
The Oldsmobile plan is not transferable, and may be terminated by the dealer or the car owner at any time.

Cadillac Offers Nation-Wide Plan

The Cadillac Motor Car Division of General Motors has developed a plan of 12,000 miles of pre-sold complete lubrication. This includes chassis lubrication, oil drains, wheel packs, differential and transmission changes. The plan is offered to new Cadillac and La Salle owners.

The main feature of the Cadillac lubrication agreement is that the car owner contracts provide that this work will be performed by any authorized Cadillac or La Salle distributor in any section of the country, without additional cost.

Coupon books, containing 14 coupons for services at different mileage intervals, are sold to car owners, at from


TIMELY LUBRICATION DRIVE SPURS SUMMER BUSINESS!
"For Safety's Sake Lubricate Every 1000 Miles This Summer" is the slogan of an intensive editorial drive by National Petroleum News, aimed at stimulating lubrication activity. This promotion, featuring the need for oil changes in hot weather driving, is expected to result in greatly increased lubrication business at service stations throughout the country.
For Further Details—See Page

Heat-Proved Motor Oils offer your customers EXTRA lubrication protection!

You can get the most from this hard-hitting lubrication campaign if you are one of the profit-minded distributors or jobbers who handle Cities Service or Koolmotor motor oils. You can offer your customers *longer* protection and *better* protection, too, because these great motor oils are *heat-proved*. Heat-proving means that they have been subjected to higher degrees of heat at the refinery than they ever will have to bear as an engine lubricant. When you beat the heat, you beat *wear*. So cash in on this opportunity for increased lubrication profits by signing up to handle heat-proved Koolmotor and Cities Service Motor Oils.

CITIES SERVICE OIL COMPANIES

CITIES SERVICE OIL COMPANY— Chicago, New York, Cedar Rapids, Boston, St. Paul, Grand Forks, Syracuse, Kansas City, Ft. Worth, Oklahoma City, Milwaukee, Cleveland, Detroit, Harrisburg.

CITIES SERVICE OIL COMPANY, LTD.— Toronto, Canada

ARKANSAS FUEL OIL COMPANY— Shreveport, Little Rock, Jackson, Birmingham, Atlanta, Charlotte, Nashville, Richmond, Miami.

Above is the lubrication section of the service department of a car dealer. Most car dealers feature "departmentalized" servicing

$28.50 for the small Cadillac and La Salle to $45 for the V-16 Cadillac.

At 1000-mile intervals, the coupon calls for complete chassis lubrication, and the addition of motor oil, transmission and differential lubes, as necessary.

At 2000-mile intervals, the Cadillac plan calls for complete chassis lubrication, draining and replacing motor oil, cleaning air cleaner, cleaning filter in crankcase ventilating system, and checking oil flow through oil filter.

At 6000 miles, it provides for the same services as at the 2000-mile interval, plus the repacking of front wheel bearings. The agreement also includes 2 changes of differential and transmission lubricants, either on a seasonal or 6000-mile basis.

Because of their relatively limited distribution, the servicing of Cadillac and La Salle cars are not a large part of the market, but each 12,000 mile lubrication agreement sold keeps the car dealers in contact with the car owner, and gives him an excellent opportunity to sell plus-profit accessory items and services in competition with the oil service station.

The service manager for a zone distributor of a medium priced car, said he has been urging his factory service department to adopt a lubrication plan similar to that offered by Cadillac. He feels that this car manufacturer will adopt such a pre-selling plan in the near future.

Whether or not this presages a more competitive fight for the lubrication service dollar between car dealer and oil service station only time can tell.

Studebaker Urges Free Inspection

Studebaker's plan for getting car owners back to car dealers' service departments, is based on free monthly inspection. This car manufacturer recommends that its dealers include in their monthly inspection all parts of the car—motor, chassis and body, as well as giving a road test for riding performance.

Some Studebaker dealers make the free inspection offer part of the 6 chassis lubrication jobs at $3.90, sold to new and used car purchasers.

Ostensibly, the Studebaker free inspection plan is provided only to assure owners of the maximum performance from their cars; but it offers an excellent opportunity to develop the need—as cars grows older—for service sales, accessory replacement sales, including batteries, shock absorbers, tires, light bulbs, filter cartridges, and all other accessories, as well as lubrication and oil drains, Studebaker dealers say.

Chevrolet, its zone office reports, does not recommend any particular lubrication agreement to be sold with the new car. It does, however, recommend where its dealers can purchase coupon books for pre-selling lubrication and oil drains, and a wide variety of lubrication agreements are being sold by Chevrolet dealers. They range from one which includes 5 lubrication jobs, 5 oil changes, and differential and transmission filling for $10, to 6 chassis lubrications for $3.

One recommended lubrication agreement of Dodge and Plymouth, offers "6000 miles of lubrication" at $4.75. This includes 6 chassis lube jobs, one wheel pack, and checking transmission and differential level.

Follow-Up Adjunct to Service Sales

The second phase of the car dealers' campaign to "corner" servicing profits is through energetic and thorough following up of every prospect.

All car manufacturers and some oil companies will supply the dealer with a customer follow-up system at cost. Zone service managers of car manufacturers report that their dealers, virtually without exception, have installed customer records for personal or mail solicitation.

The customer follow-up systems installed or recommended by manufacturers include not only the equipment necessary for keeping records, but also the printed literature used in mail solicitation.

Imprinted with the individual dealer's name and message, these mailing pieces are sold at cost by car manufacturers. Mailing pieces are based on sound selling ideas, and usually are printed in color.

The Oldsmobile Division of General Motors has a customer follow-up plan, whereby the customer is solicited monthly by the manufacturer from its headquarters with the local dealer paying the cost of the mailing. Oldsmobile keeps a record of all its car owners, and as owners move, they are taken from the mailing list of one dealer, and added to the dealer in the territory where they have moved.

Buick Owners on Follow-Up

Buick Motor Division of General Motors also emphasizes the value of follow-up to its dealers. The company reports that 62.7% of the 698,813 Buicks sold from 1936 through 1939 are on an active follow-up system of dealers.

Buick dealers send service sales reports monthly to the zone office. A breakdown of these reports is sent to all dealers in the zone. One zone manager for this manufacturer remarks that showing service sales volume done by other Buick dealers' departments, has created a friendly competition among them, and has been an added incentive to increase the gross return from their department.

Magazines Aid Follow-Up

Plymouth and Dodge Divisions of Chrysler Corp. have both developed direct mail programs to augment the dealers' follow-up system.

Programs of these 2 divisions of Chrysler are similar, being built around magazines which the companies publish for car owners.

Plymouth sends an 8-page magazine "At Your Service" to a list of customers and prospects supplied by the dealer. It is mailed every 60 days, with the dealer paying the mailing cost. It is personalized, carrying the picture of the local dealer, and the local dealer's sales message. The company supplies a catalog of service advertisements to be carried in the mag-

1000-Mile Lubrication Services In Cadillac-La Salle Plan

Below are the lubrication services which Cadillac-La Salle car dealers perform for their customers at 1000-mile intervals, under this car manufacturer's lubrication servicing program. Under this plan, 12,000 miles of complete lubrication, including oil drains, wheel packing and transmission and differential lubricant changes, are sold through coupon books when the car is purchased. Price of the books ranges from $28.50 to $45, depending on the model of the car:

"LUBRICATION NO. 1 Includes the labor and lubricants necessary to perform the operations listed below:

"Add engine oil as necessary.
"Lubricate all pressure grease gun connections.
"Lubricate water pump.
"Oil accelerator, choke control, starter rocker shafts and brake linkage.
"Oil generator, distributor, and starting motor.
"Oil door locks and hinge pins; lubricate door checks, striker plates and dovetail bumpers.
"Lubricate distributor advance mechanism and cam.
"Check and add lubricant to transmission, differential and steering gear.
"Test battery, inspect terminals, and add water.
"Add water to radiator.
"Check tire inflation.
"Clean windshield and windows.
"Check operation of all lights.
"Check operation of windshield wiper.
"These Coupons do not include adding engine oil between regular lubrications."

Our Standards—
YOUR REQUIREMENTS

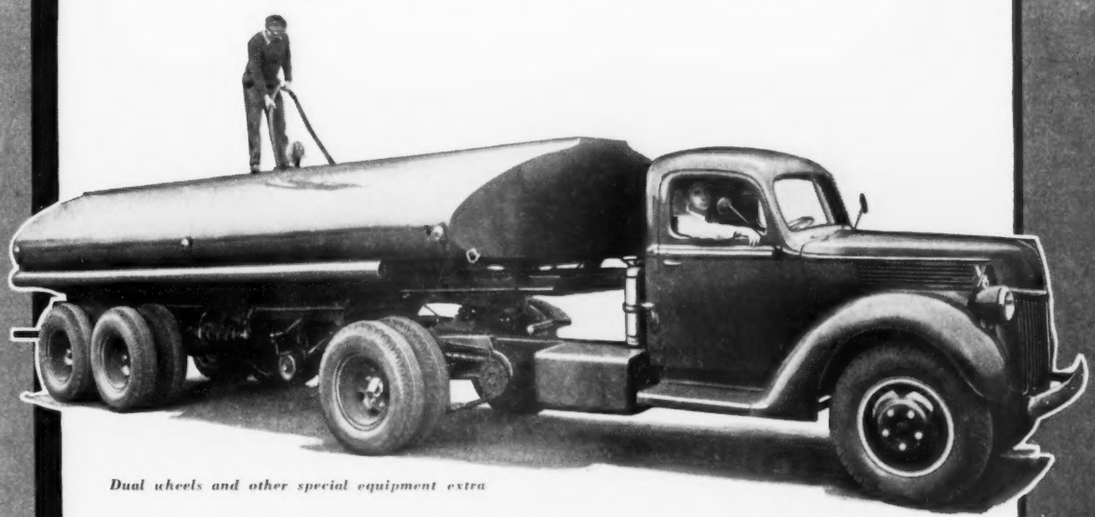
THE ideal delivery equipment for you is the equipment that comes nearest your exact requirements. We know that. We build trucks for you, not for ourselves.

But we reserve the privilege of satisfying our own standards with respect to quality. Quality, in a Ford unit, means many things. Long-lasting, special alloy steels. Advanced engineering for better performance, tighter control of running costs. Good body design, with emphasis on smart appearance and an eye toward ease of working the load. Sound body construction for load protection.

Try a Ford on your job. Ask your dealer about a free "on-the-job" test with your own driver at the wheel. He'll have some good things to say about easy handling, quietness and comfort. And *you'll* be pleased when you see how little a Ford costs to own and operate.

•

VISIT THE NEW FORD EXPOSITIONS AT THE TWO FAIRS, NEW YORK AND SAN FRANCISCO, 1940



Dual wheels and other special equipment extra

FORD TRUCKS

AND COMMERCIAL CARS

FORD MOTOR COMPANY, BUILDERS OF FORD V-8 AND MERCURY CARS, FORD TRUCKS, COMMERCIAL CARS, STATION WAGONS AND TRANSIT BUSES.

azine. From this catalog, the car dealer makes his selection.

The magazine for car owners features topics of general interest to the motorist, as well as the bid for his service business.

Plymouth also solicits the service business of the new car purchaser for its dealers through 2 letters, one from the general sales manager, and one from the director of service. Both letters emphasize that the car dealer's service men are "factory-trained," and to get the most complete satisfaction from the car, it should be serviced by the car dealer.

IN a letter to all new owners, the general sales manager writes: "Keep in close touch with your Plymouth dealer. Let his skilled, factory-trained mechanics check your car at regular intervals for lubrication, oil changes and tune-up."

"To be sure your car is always lubricated exactly as it should be, we sincerely recommend that . . . . you take it regularly to the Plymouth dealer from whom you bought it," the director of service tells new owners.

"Dodge News" is the advertising medium used by dealers of this company for the service market. The dealer's name is carried on the back and front of the magazine, which is sent by Dodge to its dealers' customers every month.

Like Plymouth, it has a catalog of service advertisements, some with and some without prices, from which the dealer makes his selection. Cost of mailing is borne by the car dealer.

Car manufacturers also aid dealers by preparing summer and fall Change-Over programs, vacation and seasonal campaigns, based on direct mail solicitation of service business. These programs are developed and prepared by the manufacturer, with the dealer paying the cost of material and mailing.

Pontiac Motors has released a summer service promotion campaign designed to attract Pontiac owners preparing for vacation trips as well as on their trips, to its dealers' service departments. Direct mail is the backbone of the drive. Mailings to owners include specially designed post cards and a vacation letter with special prices for certain service jobs.

In the drive to direct touring Pontiac owners to stop enroute at local dealers, the company is erecting new road signs on heavily-traveled highways a few miles outside of towns. These signs give the name and location of the local Pontiac dealer.

Dealers were advised by the manufacturer to "cash in" on the 1940 touring season by giving quick service, providing clean comfortable restroom accommodations and offering information about roads, hotels and eating places.

"With summer travel for 1940 expected to hit a new all-time high", said L. K. Marshall, director of Pontiac service, "we feel that Pontiac dealers will benefit only to the extent that they make plans ahead of time to get their share of this business and provide the facilities to attract tourists. To that end, our program is inexpensive and from similar campaigns which we have conducted in the past, we know that it will be effective".

The third general phase of the car dealers' campaign to "corner" the automotive servicing market is built around the physical properties of the service department. Much of the recent improvement in the dealers' service departments is due to co-operation of car manufacturers and some oil companies.

Dealers Enlist Manufacturers Aid

While direct supervision of dealers' service departments by manufacturers is not possible, close co-operation between them has resulted in bringing equipment and standards of service departments to a high level.

Gone are the dark and generally dirty "repair shops" formerly found in the back of a "flossy" automobile showroom. Through the combined efforts of the automobile manufacturer, oil companies, and the competition of modern oil service stations, in their stead are well-lighted, ventilated and departmentalized service rooms, sporting the most complete and modern types of service equipment.

Gone, too, are the "grease-monkeys" who formerly held sway over these "repair shops". They have been replaced by clean-uniformed attendants and service men—men who present the appearance of competency.

Most of the credit for the recent improvement in standards of service departments of car dealers belongs to the manufacturer. Virtually all have zone service departments and traveling representatives who work in close co-operation with their dealers.

WHILE these zone service representatives of the manufacturer are without authority to make recommendations which the dealer must carry out, they do inspect service departments and make suggestions. The majority of dealers, zone service men report, enlist their aid in modernizing and improving the service facilities and in the general appearance of their service departments.

Oldsmobile representatives have an inspection form on which they note condition of dealer's service department. Copies of the report are sent to the dealers, to the main office of the manufacturer and the zone service department of "Olds."

Typical of the questions on the form are these: "Is the service station clean and orderly? Are mechanics dressed in clean standard uniforms and caps? Did you have the service station cleaned up before you left the dealer?"

Studebaker gives a "Certificate of Merit" to service departments of its dealers which qualify. To qualify for a merit certificate, the service department must meet an exacting standard of cleanliness; must have proper equipment; and service men must pass a test for merchandising and mechanical ability.

The certificate remains the property of Studebaker, and is taken away from the dealer when the standard of the service department falls below the minimum demanded by the company. The company has been very discriminating in giving out these merit certificates.

Buick grades its dealers according to a standard of "good housekeeping". The basis of its standard is thorough cleaning and painting of the service department. Type and condition of service equipment also enters into the grading. The company recommends color combinations for dealers to use in the service department.

Most car manufacturers also have service planning departments to aid the dealer in the proper placement of equipment and departments. The deal-

Car Dealers Checked For Complete Facilities

To insure that dealers have complete facilities to service cars properly, zone representatives of Oldsmobile check the following points on a "Service Promotion Installation Report". Copies are sent to the car dealer, to the manufacturer's headquarters and one is retained by the zone service manager. Facilities or departments necessary for mechanical repair work are not listed.

APPEARANCE

Clean floor, white guide lines
Standard service station colors
Service entrance sign and arrow
Department signs
Lubrication equipment background
Standard Oldsmobile uniforms and caps

TOOLS AND EQUIPMENT

Lubrication equipment
Hydraulic hoist
Motor and Gas analyzer
Headlamp tester, wheel balancer
Brake service merchandiser
Glass enclosed wash rack

SERVICE MERCHANDISING

Perpetual customer follow-up
50,000 mile free lubrication plan
Monthly service advertising

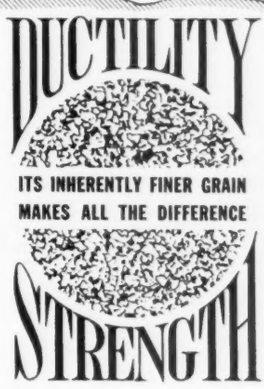
DEPARTMENTALIZED SERVICE

Customer reception
Lubrication
Battery and headlight
Motor analyzer
Steering and tire
Shock absorber
Brake
Polish

Wanted!

problems for a superior high tensile steel with excellent resistance to impact and fatigue at both normal and sub-zero temperatures.

✔ apply to N-A-X High Tensile



PROPERTIES

TENSILE

Temperature of Test	Yield Point	Tensile Strength	Elongation 2 Inches	Red. Area
+75°F.	53,000 P.S.I.	75,250 P.S.I.	38.8%	74.3%
−50°F.	58,000 P.S.I.	81,500 P.S.I.	37.5%	71.5%

(.505 inches diameter specimen)

CHARPY IMPACT

Temperature of Test	Foot Pounds	Specimens*
+75°F.	69	Charpy Keyhole type
−50°F.	50	Charpy Keyhole type

*Specimens were taken longitudinally to rolling direction.

If your parts or mobile equipment must keep on the job regardless of conditions—in sub-zero or extremely hot weather—N-A-X HIGH TENSILE is the high tensile steel you need. In addition to the regular high tensile properties, N-A-X HIGH TENSILE gives you these extra values:

1. High resistance to impact and fatigue, even at extremely low temperatures.
2. Unusual ductility, permitting cold forming or drawing into difficult shapes, usually without any change in the regular shop practices.

Because it is really a *superior* high tensile steel, N-A-X HIGH TENSILE is being used in scores of applications, in many of which ordinary high tensile steels have failed.

Build lighter, safer—with N-A-X HIGH TENSILE—and give your product the stamina to stay on the job longer with lower maintenance costs. Specify or use N-A-X HIGH TENSILE for your next application of high tensile steel.

A Great Lakes engineer will be glad to call and give you advice on where you can use N-A-X HIGH TENSILE to advantage. Ask for one to call. Great Lakes Steel Corporation, Detroit, Michigan.

GREAT LAKES STEEL CORPORATION — DETROIT, MICHIGAN

Boston, 1324 Statler Office Building; *Buffalo*, 1000 Walbridge Building; *Chattanooga*, 18 Volunteer Building; *Chicago*, 1026 Builders Building; *Cleveland*, 820 Leader Building; *Dayton*, 1401 Third National Bank Building; *Indianapolis*, 1215-17 Circle Tower; *Minneapolis*, 714 Midland Bank Building; *New York*, 405 Lexington Avenue; *Philadelphia*, 407 Liberty Trust Building; *St. Louis*, 3615 Olive Street; *San Francisco*, 824 Sharon Building; *Toledo*, 906 Edison Building. *Montreal, Quebec*, Drummond, McCall & Co., Limited; *Toronto, Ontario*, Peckover's, Limited.

division of NATIONAL STEEL CORPORATION

It may cost more NOT to give this Service!

THE absence of toilet seat cover service doesn't prevent people from taking sanitary precautions and using your paper towels to do so.

This means waste of your washroom supplies and possibly plumbing troubles and costs you more than to furnish ONLIWON* Toilet Seat Covers at less than ¼ of 1c per customer.

But loss of gallonage is a more serious matter. You can't be sure that all the complaints, or lost customers come to your attention. Your customers are sure of sanitation only if toilet seat covers are provided. So why not be sure, yourself, that you are doing everything that is needed to make this most important public service a real influence to increase gallonage.

●

ONLIWON Toilet Seat Covers are made of soft white tissue that quickly disintegrates and is easily flushed. Extra large—17¾" x 20" for full protection. They are interfolded, dispensing one to a customer, and enabling the cabinet to be refilled when partially empty.

ONLIWON Cabinets protect the seat cover supply from dust, contamination and handling. Requires only 5½ x 11⅛" wall space. Baked white enamel surface is easy to keep clean.

*Trade Mark ONLIWON Reg. U. S. Pat. Off.

If your jobber does not handle ONLIWON Toilet Seat Covers, write to A.P.W. Paper Company, Inc., Albany, N. Y.

ONLIWON

Interfolded Tissue

TOILET SEAT COVERS

Product of A.P.W. Albany, N.Y.

er need merely send in a sketch of his service building, and the planning department will work up a complete layout of equipment and departmentalized service rooms without cost. Many dealers who have recently modernized their service departments have taken advantage of this planning service, zone service men report.

In their efforts to strengthen the service departments of dealers, car manufacturers also emphasize that service salesmen be well grounded in fundamentals of sound merchandising.

Chrysler Motors developed a merchandising program aimed at keeping car dealers in frequent contact with motorists, enabling these car dealers to obtain a greater portion of the car owner's service dollar.

This program features a series of text books outlining the fundamentals of merchandising, from the smallest detail of the salesman's appearance to following up the customer to hold him as a regular patron.

The Chrysler merchandising books emphasize the value of modern equipment, attractive departments, as well as the approach used by salesmen. Outstanding examples of application of showmanship in selling are illustrated.

In one of the books, "Selling by Display", Chrysler emphasizes that car owners "do not know their service needs, so we must call upon showmanship to let the owner know what he needs and to let him know we can supply those needs." In service, it adds, "the purposes of showmanship are to (1) Impress, (2) Display, and (3) Demonstrate.

These principles of showmanship, which Chrysler urges its dealers to adopt are equally adaptable to the oil industry's stations.

The book gives detailed examples of how the customer can be impressed by the following: The outward appearance of the shop and the attendant; the approach of the salesman; greeting the customer by name; departmentalizing services; orderliness of departments and entire shop.

"Anything that can be sold can be displayed", the book states, urging dealers to display with a purpose. "Display", it adds, however, "is no substitute for selling effort, but it does make the service salesman's time more effective".

The value of attractive and modern equipment as displays in selling car servicing is emphasized, and suggestions for effective displays are made.

"Demonstration enables the prospect to experience the benefits the service or accessories will give him. He gets a taste of ownership", states Chrysler, urging dealers to bring demonstration in play in selling.

Simple effective suggestions, are made, such as rigging up a heater with the steam or hot water line of the shop to demonstrate it; or balancing on a beam balance, a clogged oil filter with a new unit.

Virtually all manufacturers operate service clubs, for service salesmen, foremen and managers of car dealers. These clubs generally meet monthly. They feature proper merchandising of products, with representatives of accessory manufacturers explaining selling points of their products. Proper application of service equipment, and use of equipment in display and demonstration also is outlined, and there is exchange of ideas among the employes of different dealers in the district.

'Life Insurance' for Engines Costs 0.001c Per Mile

Draining and refilling the crankcase every 1000 miles instead of every 2000 miles is "life insurance" for motors, and costs only a small fraction of a cent per mile additional—about one-thousandth of a cent per mile, to be exact.

This fact, as an argument for selling 1000-mile drains, was suggested by G. C. Stevenson, Great Falls, Mont., secretary of the Montana Petroleum Industries Committee, in a letter to NATIONAL PETROLEUM NEWS.

Mr. Stevenson said that result of his calculations lead to this conclusion:

"The average motorist driving a car with a 5-quart crankcase would spend only $1.50 additional per 2000 miles of driving by changing each 1000 miles as against each 2000 miles, which on a mileage basis figures at a rate of .00075c per mile additional cost for oil; whereas, with the 2000 mile changes he would probably spend many times that amount in additional repair bills and motor adjustments. The mental satisfaction of knowing always that one has good fresh oil in the crankcase is worth the slight additional cost not to mention the saving in other directions. With a 7-quart crankcase the additional cost for changes each 1000 miles as against 2000 miles is only .00105c per mile."

California Standard Promotes Park Travel

A series of full-color reproductions of western National parks is being distributed this year as part of the 1940 advertising program of Standard Oil Co. of California.

These prints are reaching motorists throughout the West by Standard Station, Inc., and by Calso Gasoline Dealers in the Rocky Mountain states.

These prints are 9 x 11 inches and are suitable for framing. Accompanying these prints is a historical summary of each region.

INDEPENDENT AND HELPFUL

Emphasis on Design

Today's smart new containers are designed to produce more sales. Competition is forcing this change-over to better packages in every line of business.

Perhaps you are considering an improvement in your own line of metal containers. If so, Crown is able to offer you an outstanding service. A staff of competent artists will be glad to render practical assistance.

Crown is winning a fast-growing patronage by helpful service, prompt deliveries and all-round quality in the finished containers.

CROWN CAN COMPANY, PHILADELPHIA, PA.

Division of Crown Cork and Seal Company

BALTIMORE ST. LOUIS HOUSTON MADISON ORLANDO
FORT WAYNE NEBRASKA CITY

CROWN CAN

One of the Home Oil & Gas Corp.'s 4 heating oil delivery trucks, with side panel open showing location of the automatic recording meter and manifold

Know Customer's Needs And Serve Them

That is Key to Fuel Oil Business Built Up By Home Oil & Gas Corp., of St. Joseph, Mo.

AN EXCELLENT heating oils business has been developed by the Home Oil & Gas Corp., St. Joseph, Mo., through strict application of two merchandising rules:

1. Sell the customer a complete and trouble-free service.
2. Know all there is to know about each customer's heating plant.

The company has sold and installed approximately 300 burners in that city of 75,000 population and it sells several million gals. of heating oils annually. That in the face, too, of competition from natural gas at a domestic rate of 60c per 1000 cubic feet, and Missouri and Arkansas coal at an average of $7 per ton.

A complete and trouble-free service means selling the burner, keeping the unit serviced and guaranteeing to keep the customer's tank supplied with fuel at all times.

The company sells a nationally-known burner, under the manufacturer's name plate. It does not consider the sale of burners a profit item. The customer usually pays only slightly more than the cost of the burner to the oil company, plus the installation expense.

On the other hand Home Oil does not compete for burner business where "price" is the predominant factor. It declines to sell and install a burner "at a price" just to gain one more heating oil customer.

Before a burner is installed, the head of the heating oils department, and the man in charge of installations and service, make a thorough inspection of the prospective customer's heating plant. If that plant is found to be inefficient, the company declines to install its burner until the heating system is revamped or repaired.

While that may appear on the surface as an arbitrary attitude, the company officials believe that, if they are to give the type of complete and trouble-free service they promise, they must have every possible factor in their favor. They also know that, unless a heating plant is efficient in the first place, they are likely to have difficulty in satisfying the customer.

The head of the heating oils department personally supervises the installation of every burner sold by the company. Every effort is made to have the burner installed correctly. That precaution, it was explained cuts down service calls.

Several years ago, the company made a charge of $10 a year for complete service. Eventually it was forced to extend free service and now keeps a service man on the payroll all the time. He confines his work, however, to routine service. The company does not replace worn parts or make other repairs to burners unless the one-year guarantee is still in force.

Although the company gives its customers free burner service, it records against each account the cost of each service call. The average "cost" is approximately $1 per call, it has found.

In its contract renewals, the company usually attempts to set a maximum number of free service calls the customer can have during the season. This number is determined from the customer's calls the previous season and the gallonage used during the season. An effort is made to keep the maximum number of service calls to the point where the cost will be equivalent to about 0.1 of a cent per gal.

In order to know completely about each customer's heating plant, a great deal of detailed information is placed on each contract, and then on the customer's service card.

Space is provided on the contract for the date the customer's tank was cleaned out or filled; for a description of the burner; size of the storage tank and type of oil best suited for the burner; the length of hose needed to reach from the delivery truck to the fill pipe, and the best method to fill, i.e. by pumping or by gravity. Also, in each contract is a description, for the driver's guidance, a note is made of the best place to make the delivery such, such as the street, alley or driveway.

When a contract is signed or renewed, it is passed to the delivery and service department. If the contract places the responsibility for service on the company, the service man inspects the heating plant. If it is necessary to clean the tank, that work is done at once.

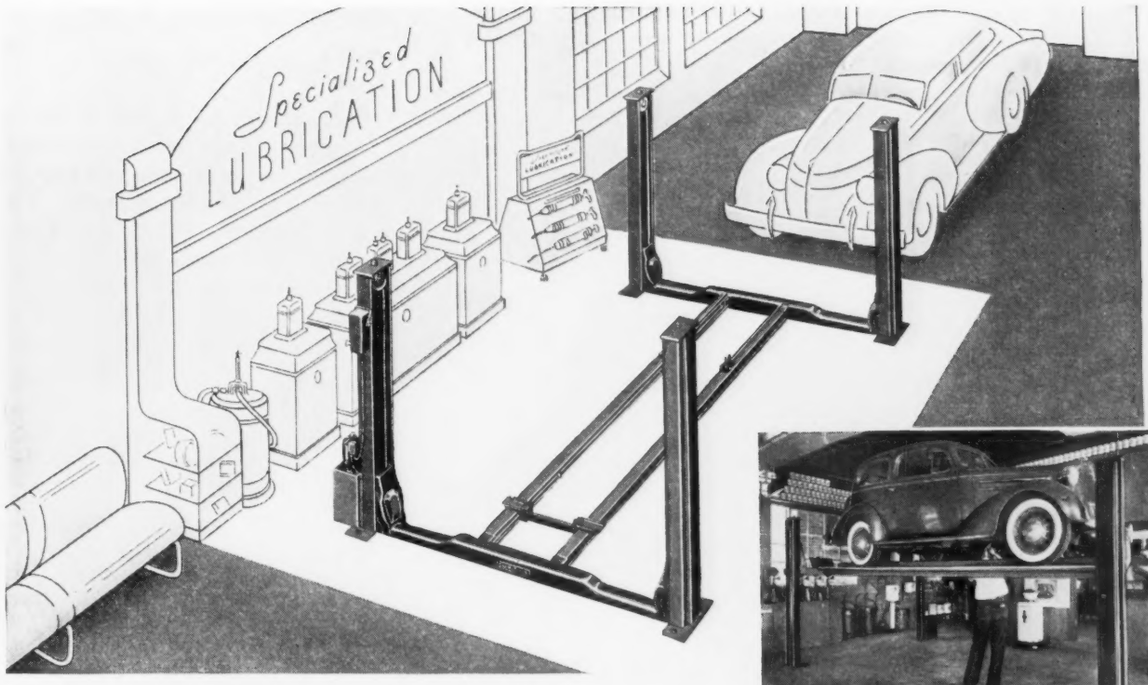
After the tank is cleaned—and the company allows the customer credit for oil pumped out—it is filled. This permits the company to make use of the customer's tank for storage during the summer. The customer does not have to start paying for his fuel until he is using it in the fall.

The service man does whatever is necessary to get the burner in proper condition for use. After he has completed and tested his work, the customer is notified that his heating plant is ready for use.

The company also keeps a detailed record of deliveries. Since the men responsible for giving trouble-free service, know so thoroughly each customer's heating plant, it is not a difficult task to keep tanks adequately filled at all times.

Home Oil stresses the point that its heating oils are "triple-filtered" and dispensed through automatic recording meters. This is good advertising.

The company has also found that



Speed Up Your Work, Increase Service Profits with the New

CURTIS Four Post Lift

THE Curtis Portable Four Post Electric Lift provides unusual accessibility, making it possible for you to do your lubrication and service work more quickly and easily — your men take less time per job — profits increase.

There's no center column to interfere with the worker — there's plenty of clear working space under the car. It's portable, too — move it when and where you like. No floor sockets or excavating required.

The Curtis Four Post Lift is self-aligning and can't bind in any way. Weight of car makes it rigid, and when car is on lift, the four columns automatically adapt themselves to the rigid platform. No overhead obstructions to endanger car doors. Complete safe and ruggedly solid when loaded. Safety switch and safety dog on all four corners.

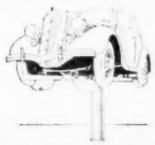
It will pay you to install the Curtis Four Post Electric Lift in your shop or station — it quickly pays for itself in selling more repair jobs and in saving time on any job needing a lift. The coupon brings full information and prices —send it in today.

Read this user's enthusiastic comments on his Curtis Lift!

"The installation of this modern equipment has proven so valuable that we will double it by installing an additional Curtis Lift.

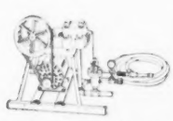
"This is undoubtedly the finest lift equipment manufactured today and we are greatly pleased that we have it. We are especially pleased with the safety, speed, ease and quietness of operation of this lift. A new Curtis Air Compressor, to complete this equipment, does not show in the photograph."

Grant-Bayless Co.,
St. Petersburg Ford Dealer



Curtis Hydraulic Rotating Lifts . . . oil locked . . . absolutely safe . . . four ton capacity . . . 16 ft. self leveling platform . . . handles all cars.

Curtis Compressors. . . dependable, low cost air supply . . . precision built for long life . . . automatic starting unloader . . . sizes ¼ to 10 H. P., single and two-stage.



Curtis Hydraulic Car Washers . . . new low prices . . . simplified, rugged design . . . self oiling . . . money makers for any shop . . . 4 sizes.

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1965 Kienlen Avenue, St. Louis, Missouri

Please send me complete information and prices on the Curtis Four Post Electric Lift.

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Address.....

City.....State.....

filtering and metering saves a lot of expense: (1) in the number of service calls and cleanouts; and (2) arguments with customers over quantities delivered.

The company uses at least 4 strainers on its lines. There is one on the line from the tankcar to the pump and another on the line from the pump to the storage tanks. A third is on the line from the storage tank through the pump to the truck loading line. Finally, there is a strainer on the unloading line from the truck.

The company uses meters on all lines at its bulk plant, except the heavy oil lines. All oils are metered into delivery trucks. Each of its 4 fuel oil delivery trucks is equipped with automatic, recording-type meters.

Three fuel oil trucks are used exclusively for that purpose while a fourth, used for distillate deliveries in the winter, is swung into gasoline delivery service during the summer months.

The company keeps a full-time maintenance man, at the bulk plant. He looks after the mechanical work on the trucks and also keeps the bulk plant's mechanical equipment in good condition.

One of the company's station lessees has a contract to keep the trucks cleaned, lubricated and serviced. This lessee picks up each truck once a week, takes it to his station and washes and lubricates it and changes the motor oil if necessary. This arrangement, company officials say, has been very satisfactory.

For some time now, the company has been hauling virtually all of its gasoline by transport, each unit making two round-trips a day between the refinery's source of supply and the bulk plant.

Heating oils have been received by tank car. But, transportation of gasoline has been so successful, that Home Oil is now constructing a heating oil transport unit, which will go into 24-hour service within a short time.

'Cleanliness Chart' Issued for Service Stations

Mid-Continent Petroleum Corp.'s "The Diamond," company house organ, recently consulted Webster's dictionary for a definition of "cleanliness" and found that this authority says "habitually clean," or "kept clean."

With this in mind, Mid-Continent's officials published the following "Cleanliness Chart":

In the interest of safety and cleanliness the following suggestions will be of benefit and interest and will enable you to keep cleaner and safer service stations:

	Method	Material	Hazards to Be Avoided
Driveways	Scrub	Brush and water with trisodium phosphate base cleaner, or prepared soaps; kerosine for grease spots.	Slipping on wet driveway Use of gasoline
Floors	Scrub	(Same)	(Same)
Windows, Windshields, etc.	Wash	Brush, chamoise, squeegee, rags, soap and water or patented trademark liquids ("Windex," etc.).	Broken or cracked glass Falls from ladder
Walls	Wash	Brush, rags, soaps and water	Falls from ladder
Toilets	Scour	pounds, patented trademarked cleaner	Use of gasoline
Brass Handles, Nozzles	Polish	Brass polish and rags	
Pump Globes	Wash	Rags, soap and water	Falls from ladder Breaking of glass
Pumps and Hoses	Scrub	Brush, rags, soap and water	
Pump Bowls	Rub	Rags (rubbing only will clean them usually)	Falls from ladder Breaking of glass
Compressors and Lifts	Wash	Rags, brush and kerosine	Cleaning while motor is running Use of gasoline
Oil Tanks	Wash	Rags, brush, soap and water, kerosine	
Furniture	Polish	Rags, furniture polish	
Grounds	Rake Sweep	Rake, broom, etc.	Leaving tools, particularly rake lying on grounds
Automobile Parts: Air Cleaners Wheel Bearings, etc.	Wash	Brush, rags, kerosine, distillate	Use of gasoline
Automobile Bodies	Rub	Rags, M. P. C. Cleaner, whisk broom	Slammed doors
Automobile Interiors	Sweep	Vacuum cleaner, carbon tetrachloride	Use of gasoline

General:

Avoid use of gasoline and other light oils whenever possible.
Do not store oily rags, mops or waste in tight containers.
Do not allow accumulation of waste, rubbish, or oil-soaked materials on premises.
Remove oily or greasy spots from floors and driveways immediately.
Use drip pans for compressors or lifts if necessary.
Keep fire extinguishers filled.
Do not attempt to use water to extinguish an oil fire.
Do not leave tools, broom, brushes, pails, hose, etc., where they can be tripped over.

Please read this carefully and keep it where you can refer to it readily at all times.

National Defense May Increase Use Of Liquefied Gas

LOS ANGELES—Liquefied petroleum gas, a product of natural gasoline plants, may come into greater use through our national defense preparations, Henry N. Wade, Los Angeles, president of Parkhill-Wade, engineers, told the recent annual meeting of the Pacific Coast section of the Liquefied Petroleum Gas Assn., at Santa Barbara.

"Bottled gas," at it is also called, now with limited markets, could find much greater application as motor fuel, he stated, thus releasing equivalent volumes of gasoline for more direct use in war preparations. It is now used as motor fuel in farm tractors and other farm machinery, trucks, dirt moving and road building machinery, and oil and water well drilling machinery, among other uses.

Additional benefits from the use of liquefied petroleum gas as motor fuel would be, this speaker said; the speeding up of equipment using it, reducing labor and material required for maintenance of the automotive equipment and decreasing the consumption of lubricating oil.

Another use of L.P.G. in defense plans, said Mr. Wade, would be as an emergency, or standby fuel service for industrial plants normally operating on gas. Such service is now maintained at some factories for emergency service in the event of failure of the gas supply, or to supplement the normal gas supply in periods of peak demand.

Emergency standby plants to insure operation of vital war material factories against failure of their normal gas supply would be an important protection to those plants. "They can be made secure against attack, since the storage tanks can be buried, or better, installed in concrete vaults, and the compact vaporizing equipment can be similarly protected," said Mr. Wade.

Another war preparation use of L.P.G. was cited as fuel for central systems at permanent and semi-permanent military establishments, to supply heat for cooking, water heating, space heating and even lighting. It could also be used to fuel electric generating sets, water pumping units and other powers as required.

Mr. Wade referred to the alkylation processes for converting iso-butane, a component of liquefied petroleum gas, into iso-octane, a material having an octane number of 100 and of great value as an ingredient of fighting grade aviation gasoline.

"Subject to the limitations imposed by the cost of fractionating the iso-

. . . and one big reason for improved economy is improved gasoline

▶ Whenever you hear a customer brag about his car, remember you have just as much right to brag about the modern gasoline you sell. Because a good deal of the improved economy, performance and reliability of modern cars has been made possible by improvements in gasoline.

Remember, your best gasoline has as many up-to-date "features" as the latest model automobile. It is clean, well balanced, quick-starting and it is high in anti-knock quality. And today's high-compression engines are able to take full advantage of this high anti-knock quality.

Every modern car has an adjustment—the spark adjustment—which allows a mechanic to tune-up the engine for extra performance and economy when the tank is filled with your best gasoline.

These are facts worth telling your customers—and the chart below will make them easy for you to explain.

THE HIGHER THE ANTI-KNOCK QUALITY OF GASOLINE...

THE FARTHER A MECHANIC CAN ADVANCE THE SPARK TOWARD MAXIMUM POWER *(without knock or ping)*

AND THE BETTER THE PERFORMANCE OF THE CAR

HERE ARE THE SIGNS OF IMPROVED GASOLINE

BETTER — This sign on a pump means that lead (tetraethyl), a liquid, has been added to the gasoline to improve its anti-knock quality. "Leaded" gasoline is sold by dealers throughout the United States and Canada.

BEST — The "Ethyl" emblem means that: The gasoline contains enough lead (tetraethyl) for highest anti-knock, is your finest motor fuel, and the engine's spark can be advanced closest to the point of maximum power and economy.

THE BETTER THE GAS—THE BETTER THE CAR

ETHYL GASOLINE CORPORATION, *manufacturer of anti-knock fluids used by oil companies to improve gasoline*

butane and gathering it from its scattered sources into a central alkylation plant of reasonable size, this use of iso-butane would probably would take precedence over all others in the national defense economy," he said.

"However, such diversion of iso-butane will have no serious effect on the development of the direct use of liquefied petroleum gas for a long time, since it is estimated that iso-butane constitutes not more than 20% of the volume of present L.P.G. materials. The present total utilization consumes about 20% of the readily available supply of L. P. G. materials, so that the diverted iso-butane can be replaced easily."

Referring to the recently announced processes for manufacturing synthetic rubber from petroleum, Mr. Wade said the immediate product which serves as the starting point for the synthesis is butadiene, "a sort of first cousin to butane." Butadiene, he said, could be made by cracking crude oil or distillates and also by removing some hydrogen from butane as it is found in liquefied petroleum gas. He said:

"As far as we can determine from published material, production of butadiene by cracking is probably cheaper than making it from butane, particularly if the butane has a reasonable value for direct use. At present it is impossible to judge how far this development may affect the utilization of butane for fuel purposes. But even if all the available butane were absorbed in the manufacture of rubber, the same operations required for the extraction of butane will yield large amounts of propane." Propane is also a liquefied petroleum gas widely used as "bottled gas."

Henry N. Wade

Mr. Wade estimated the economically available supply of petroleum liquefied gas in this country as follows:

"Starting with the statement in a recent A.P.I. report on natural gas that thet total wet gas processed by natural gasoline plants is currently 5,600,000,000 cu. ft. a day, we then have to estimate the average available L.P.G. (propane and butanes) content of this gas in excess of the butane absorbed by the natural gasoline production. We have estimated that this excess content averages 1 gal. per thousand cubic feet, and that the average gasoline plant can capture half this amount with a reasonable outlay for L.P.G. equipment.

"On this basis, the readily available supply is 2,800,000 gals. a day or just over 1,000,000,000 gals. a year. This is nearly 5% of last year's total consumption of gasoline in the U. S; it it also over 6 times last year's consumption of aviation gasoline.

"The best present estimate of total L.P.G. consumption for 1939 is 227,000,000 gals.; thus the industry has plenty of room to grow and still take care of all existing fields of use."

Intercity Bus Travel Increases By 8.7%

The larger intercity and suburban bus lines of the United States rolled up a total mileage of 569,615,653 miles in 1939, and carried 235,987,103 common and charter revenue passengers, according to the Interstate Commerce Commission. The mileage increased 8.7%, the report showed, and the number of passengers 15% from 1938, when the buses carried 205,196,244 passengers an aggregate 525,844,421 miles.

On the average, each passenger paid 58.8 cents a ride. Six cents of this, more than 10%, was then paid by the bus companies in operating taxes and licenses alone. These taxes amounted to $14,476,308 in 1939, an increase of 12.3% from 1938's total $12,887,858. Total operating revenues, in comparison, increased 11.8 per cent.

More than two-fifths of the passengers were carried in the populous Middle Atlantic region, but the bus mileage traveled was more evenly distributed, with the Middle Atlantic, Central, Southern, and Southwestern regions each taking about one-sixth of the total.

These data, which cover only Class I carriers with annual gross revenue of more than $100,000, probably represent about one-fifth of the total bus mileage in the U. S., and only about one-twentieth of the total number of passengers carried. Not included are the strictly intracity operators, the private carriers, sightseeing and other miscellaneous buses, and school buses.

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This sensational Long Residuum oil is refined by a special fractionation process that gives it the best available lubricating body. It is a guaranteed 100% Bradford Pennsylvania product . . . . free from acid, gum and sludge.

Low priced to meet all competition. High quality to keep all customers.

There's Gold for You in K-24

In 1 and 5 quart and 2 gallon black and gold lithographed cans—and in drums. *Send for samples and prices* covering exclusive franchise contract.

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Tire Inspection Urged By Rubber Companies

Due to greater number of cars sold in the past year, war in Europe, continuance of the world's fairs in New York and San Francisco and designation of 1940 as "Travel" America Year" by President Roosevelt, there are a greater number of motorists on this country's highways this summer, according to Rubber Manufacturers Assn.

With greater travel, longer trips and newer automobiles come increased speed, and more severe tests on all parts of the car.

Tires particularly should be thoroughly inspected, it is said, because summer driving conditions are harder on tires than perhaps any other part of the car. During the hot summer months tire failures due to heat are greatest. Old tires already weakened by age and heat, are more likely to fail.

In summer road surfaces are 20 to 30° hotter than atmospheric temperatures. When the weather man tells you the temperature is 100°, tread wear is over 4 times as fast as at 40°, driving at 40 miles per hour. If rate of speed is increased tread wear is further increased. As a result tires which may look acceptable for a few hundred miles of winter driving may not last during a long trip in the summer.

The American Automobile Assn. estimates that last year 10,000,000 tires went flat in this country. Ninety per cent of all tire failures occur during the last 10% of their mileage driven. In the hot summer months, tire failures are 20% higher per car mile than they are during other months of the year.

Because tire failures are always a source of inconvenience and annoyance, and sometimes a cause of accident, motorists are reminded that reasonable precautions and regular inspection of tires will reduce the possibility of tire trouble to a minimum and also prolong the life and mileage of tires.

The Rubber Assn. recommends:

The following simple precautions, states the Rubber association, should constitute effective "tire safety insurance":

1. Keep your tires properly inflated, including the spare. Check air pressure at least once a week, and inflate to the manufacturer's recommendation when the tire is cold.

Do not let air out of a tire if it has gained pressure during a trip when it is hot. It is natural for heat to increase the pressure in the tire and to deflate it will only cause it to get hotter when the trip is continued, because the tire will flex more.

2. Have your tires examined by your tire dealer. Most dealers make no charge for an examination without demounting the tires. As a safety precaution, however, it will pay to have your tires demounted, inspected, thoroughly inside and out even though a nominal charge is made for this service. Have any cuts and bruises, which are found, promptly attended to. An ounce of prevention is worth a pound of cure.

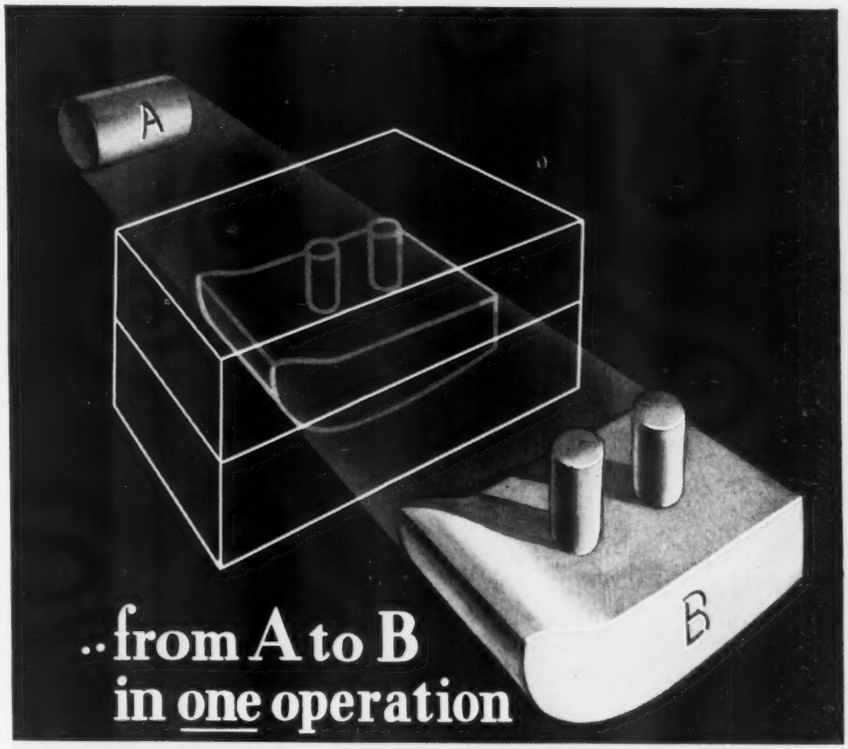
Reports from various parts of the country have indicated that the recent severe winter caused considerable damage to the nation's road even in some southern sections of the country. That damage, in terms of tires, may mean hidden sidewall and carcass injuries and bruises not apparent to the average motorists as a result of driving over "chuck holes" and ruts.

3. If your tires show signs of misalignment, have wheels checked and properly balanced. Make sure brakes are equalized.

4. In order to obtain the most mileage switch wheel position of tires every four of five thousand miles, using the spare tire in its regular turn. This is especially important for motorists who travel with the rear end heavily loaded with baggage. The following diagram shows the recommended order of switching.

5. Check tubes and valves for slow leaks. Replace old worn tubes. Many tires are ruined by failure of tubes. After all it is the tube that holds the air—the casing only protects the tube.

6. Tires that are worn smooth represent potential trouble. They offer less protection to punctures and bruises and provide practically no resistance to skidding when the pavement is wet. Replace smooth tires, concludes the Rubber association.



..from A to B in one operation

At one of the plants of a large manufacturer, copper cylinders (A) are being converted into contact fingers (B) with *one push* in a cold forging operation. Elimination of the transfer of metal to the die in this unique job is effected by the use of "dag" colloidal graphite as a die lubricant.

Because it lubricates in the face of high temperatures and heavy pressures, drop forging, die casting, cold forging, wire drawing, and extruding operations benefit. And an important point to remember is that "dag" Brand can be had in practically any carrier fluid - the selection depending on the use. We can literally build a product to your specifications.

Your own oil supplier either has or can make up high pressure and high temperature lubricants containing "dag". Ask him about them and write us for Technical Bulletin No. 130.

ACHESON COLLOIDS CORPORATION
PORT HURON, MICHIGAN

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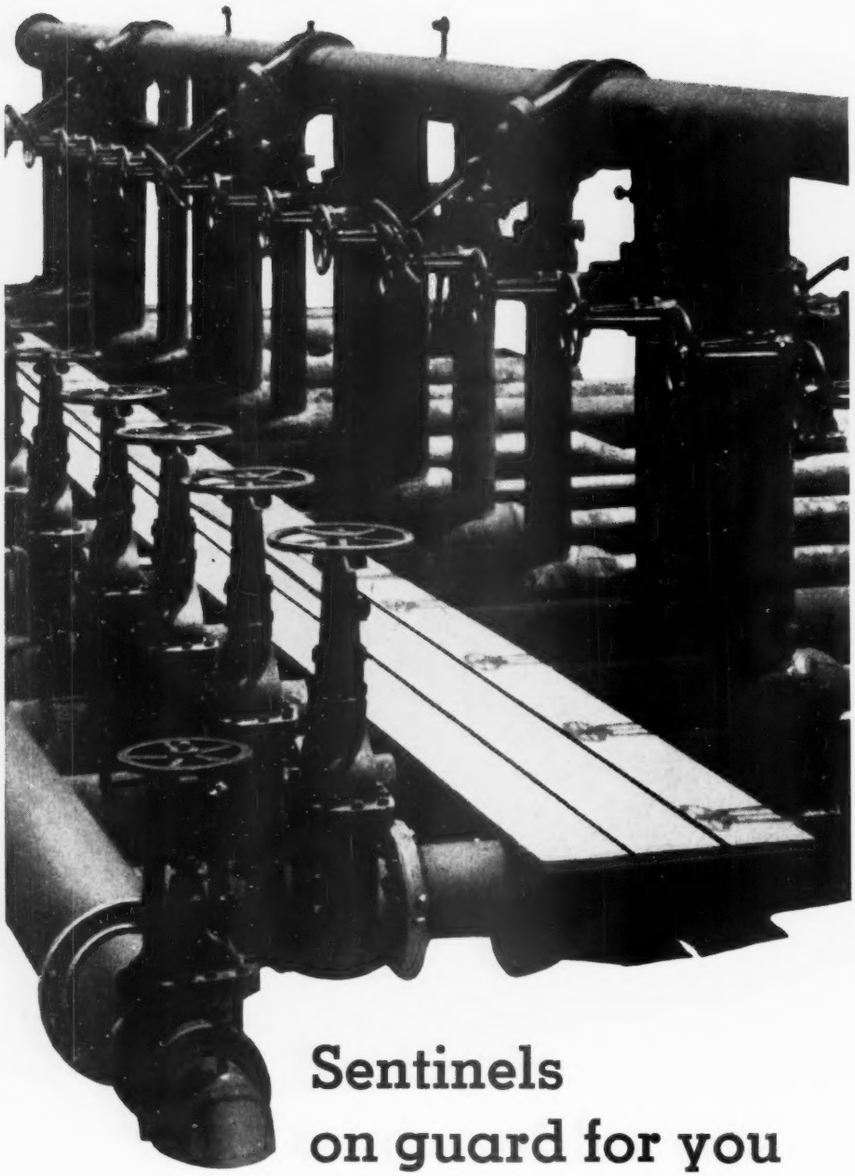

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Here is the heart of the protection given you at General American Terminals. Entirely separate lines and pumps for dissimilar commodities insure you against contamination. These valves and pipes make it mechanically certain that your commodity will flow through the *right* pipe to the *right* tank, designed specifically for *your* type of liquid. Men and modern facilities "team up" to protect you completely. Join the list of world-leaders who use General American facilities.

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A DIVISION OF GENERAL AMERICAN TRANSPORTATION CORPORATION

Government Gives Rules For Medicinal Labels On Petroleum Products

Rules on labeling 2 petroleum products, intended for medicinal purposes, have been received from the Food and Drug Administration of the Department of Agriculture, states M. C. Mallon, attorney for National Petroleum Assn. These rules follow:

"1. Petrolatum which does not meet specifications of the United States Pharmacopoeia, and is used entirely for technical non-medicinal purposes, is not required to be labeled with a statement showing the extent of deviation from the specifications of the United States Pharmacopoeia for petrolatum. It is our opinion, however, that the labeling should clearly indicate that the article is intended for technical and industrial purposes and is not for medicinal use.

"2. We have not considered that petrolatum sold in tank cars is required to be labeled.

"3. Paraffin is recognized in the United States Pharmacopoeia and if sold as such for medicinal use or intended for use as a component of any drug product should be properly labeled under the provisions of the Food, Drug, and Cosmetic Act. If it is intended for technical use the label should bear some such statement as 'not for medicinal use.'

"4. It is our opinion that crude or semi-refined scale shipped in either drums or tank cars does not come under the jurisdiction of the Federal Food, Drug, and Cosmetic Act. This opinion is based upon our understanding that crude or semi-refined scale is the crude material from which paraffin is made."

Safety Courses Offered By National Institute

When the third annual National Institute for Traffic Safety Training is held at University of Tennessee, Knoxville, Aug. 12-24, two-week courses will be offered in the following subjects:

Traffic engineering, traffic law enforcement, safety education in elementary and secondary schools; and advanced methods of adult driver training. One-week courses will deal with vehicle fleet safety; safety organization and public education; traffic accident reports and records; and traffic safety fundamentals.

Sponsors of the Institute are: American Assn. of Motor Vehicle Administrators; American Assn. of State Highway Officials; American Automobile Assn.; American Public Works Assn.; Automotive Safety Foundation; Highway Education Board; Institute of Traffic Engineers; International Assn. of Chiefs of Police; National Safety Council; Northwestern University Traffic Institute; and Yale University Bureau.

MARKETS

Mid-Western

CHICAGO, July 20—Gasoline demand was "fair with the outlook demand improving," according to reports of refiners and tank car marketers in Chicago the past week. Some sellers reported demand for burner fuels for storage. Refiners said the call for kerosine was "fair," with demand increasing in some sections. No changes in quotations were reported by refiners or tank car marketers.

Refiners' Group 3 kerosine quotations ranged from 3.875 to 4.25c for 41-43, and 4 to 4.625c for 42-44. Tank car marketers' quotations were 0.25 to 0.375c below refiners' lows and ranged from 3.50 to 3.75c for 41-43, and 3.75 to 4c for 42-44, FOB Group 3.

Group 3 gasoline quotations reported by refiners ranged from 4.75 to 5.25c for 72-74 oct., 4.375 to 4.75c for 63-66 oct., and 4 to 4.25c for 60 oct. & below. Tank car marketers' low quotations were 0.625 below refiners' lows and ranged from 4.125 to 4.25 for 72-74, 3.75 for 63-66, 3.375 to 3.50 for 60 oct. & below, FOB Group 3.

Three tank car marketers reported total open spot sales during the week as follows: 15 cars of 72-74 oct. leaded gasoline, two at 4c, 11 at 4.125c, and two at 4.25c; one car of 63-66 at 3.625c; two cars of 60 & below at 3.50c; one car of 41-43 kerosine at 3.50c.

Gulf

NEW YORK, July 20—Increased interest in and open spot sales of fuel oils following the rapid decline in tanker rates were reported at Gulf the past week. Activity in gasoline was at a minimum, it was said. With the exception of No. 2 fuel, refiners' asking prices for refined products were unchanged, according to reports here and from the southwest.

Two cargoes of No. 2 fuel, one of 50-55,000 bbls. and one of 65,000 bbls. brought 3.375c for early August delivery, up 0.125c from the last paid price. A refiner also reported selling 85,000 bbls. of "below specification No.2 fuel, immediate lifting, for coastwise shipment at 3.25c." Asking prices reported by some refiners for No. 2 fuel ranged up to 3.625c.

Increased activity in aviation gasoline was reported with one refiner reporting he had received two foreign inquiries for 100,000 drums each. Several sales also were said to have been closed. Reports were current in the trade that 150,000 drums of aviation gasoline had been sold for loading this month to Japan and that sale of an additional 150,000 drums was about to be made. Prices and specifications could not be learned.

Sale of 90,000 bbls. of minimum 7 gravity Bunker "C" fuel for August coastwise shipment was reported closed at $0.80 a bbl. A Corpus Christi district refiner said he had bought 30,000 bbls. of Bunker "C" at $0.90 a bbl. "I'm still looking for another 25,000 bbls," he remarked. Asking prices reported by refiners in other districts for Grade "C" ranged from $0.80 to $0.90 in ships' bunkers, from $0.80 to $0.87 in cargo lots.

Report also was heard that 100,000 bbls. of motor fuel and 100,000 bbls. of "miscellaneous products" had changed hands. Confirmation was lacking and details as to prices and specifications were not revealed.

Atlantic Coast

NEW YORK, July 20.—Most grades of gasoline were offered 0.25c lower at nearly all Atlantic Coast points, accordingly to suppliers' reports the past week. Not much activity was reported in kerosine and light fuels; some reports of price shading on these products were encountered. Bunker "C" fuel at New York continued steady at $1.25 to $1.35 a bbl., suppliers said.

Gasoline reductions of 0.25c to 5.75c in tank cars and 5.50c in barges at New York were reported for 65-66, 68-70 and 72-74 oct. grades. Supplier who made these cuts also said he had reduced his Philadelphia quotation for 72-74 oct. 0.25c to 6c.

Quotations for 60-64 and 72-74 oct. gasoline were reported down 0.25c at most southern seaboard points at 6 to 6.25c for 60-64 oct. and 6.50 to 6.75c for 72-74 oct.

Mid-Continent

TULSA, July 20.—Continuation of the recent downward trend of lube prices featured Mid-Continent markets the past week. Wax prices also were off 0.25 to 0.5c a lb. Quotations reported for other products were unchanged.

Quotations reported by refiners for 150-160 vis. D 210 bright stock ranged from 14 to 18c for 0-10 pour, and 13.50 to 17.50c for 10-25 pour, off 1c on the lows of both items. No. 2 color nonviscous neutrals were down 0.25c at 5.25 to 6c for 60-85 vis. and 5.25 to 6.25c for 86-110 vis. No changes were reported in pale or red oils.

Several sellers reported "increasing scarcity" of natural gasoline. Sales of Grade 26-70 were reported at 1.50c, FOB Group 3, nearly every day the past week. Three sellers reported quoting 2c, FOB Group 3, and several sales were reported at 2c, FOB Oklahoma plant, for local delivery. Breckenridge quotations were reported unchanged at 1.25c.

Pennsylvania

CLEVELAND, July 20.—Options on approximately 120,000 bbls. of bright stock taken by several large-company buyers had a "steadying effect" on western Pennsylvania lube prices the past week, according to reports from the field, but only after prices reported by refiners had dropped to the lowest levels in 19 months. See elsewhere in this issue of NPN for further details.

Quotations reported by some refiners for 25 pour test bright stock were off 2c a gal. to 12c, although as the week ended some refiners said they were still asking up to 14c. Low pour test bright stocks also were down 2c at 14.50c for 10 pour, and 13.50c for 15 pour. Dark stocks were quoted 1c a gal. lower with 600 steam refined at 8 to 9c.

Wax, equally as hard hit, by loss of export outlets, as bright stock, was offered 0.5c a lb. lower at 2.50c, New York, by some refiners. Quotations reported by others ranged up to 3.25c. Domestic demand for wax was "fairly steady", according to some reports. One refiner early in the week reported selling two parcels of 127 melting point scale, one at 3c, New York, and one at 3c, FOB his plant.

No changes were reported in quotations for neutral oils or light ends.

California

LOS ANGELES, July 20—Effective July 17, Standard Oil Co., California, announced increase of 15c per bbl. in bunker C fuel oil, specification 400, which advanced its San Pedro base price from $0.75 to $0.90 per bbl. On July 18, other suppliers reported meeting the advance, which conformed to adjustment of fuel oil delivered in tank trucks made here in April.

Japan was reported to be in the market for about 500,000 bbls. of aviation gasoline, leaded to 87 octane, for shipment in next six months, in new steel drums. This was said to be in addition to approximately the same quantity for which orders were reported already placed with Gulf Coast and California suppliers at 13c per gal., f.o.b. ship. Allowing for cost of drums and shipping expenses, this was estimated to equal slightly under 7c per gal. if shipping point was at tidewater.

Declines were again reported in rack prices of third grade gasoline at some independent plants in the Los Angeles Basin. Quotations reported for this product ranged from 4.75 to 5c a gal.

Quotations on other products were reported unchanged.

REFINERY and SEABOARD PRICES

In bulk lots by Motor Transport, Tank Car, Barge or Tanker as shown

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

HOW PRICES ARE REPORTED—

Refinery and Seaboard prices in National Petroleum News are gathered by PLATT'S OILGRAM and are as published in the Monday issue of the OILGRAM.

PLATT'S OILGRAM is a reporting service issued in three identical editions daily from News Bureaus at New York, Cleveland, and Tulsa, Okla. PLATT'S OILGRAM gathers and publishes what its publisher and representatives believe to be accurate news of sales, prices and current happenings affecting the oil industry and that will be of interest to its subscribers. As this information is usually private, OILGRAM reports it according to what it is able to obtain from sources deemed reliable.

All information is supplied without guarantee as to its completeness, accuracy, time of transmission or promptness of delivery.

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Publisher reserves the right to change the extent, nature and form of showing this information at any time.

Prices shown in the tables are quotations (meaning sellers' general offers or posted prices), or actual sales prices, reported to OILGRAM by refiners for "open spot" transactions, except as otherwise specified.

Prices arrived at by discounts off a specified price or "market date of shipment," prices named in contracts or prices arrived at in accordance with any arrangement made prior to date of sale, are not for "open spot" transactions and therefore are not considered in making the price tables. Prices made to brokers and prices in "inter-refinery" transactions are also not considered except as may be noted.

All prices are for "immediate" shipment except in Gulf Coast bulk transactions where shipment is generally to be made in ninety days. Prices are FOB refineries, pipelines, or tanker terminals in districts designated.

Prices shown are for quantities in bulk such as tank car lots, motor transport lots or barge lots; and in cents per gallon; heavy fuel oils are in dollars per barrel of 42 U.S. gallons; wax and petrolatums are in cents per pound. Prices applying to barges or cargoes only are so designated.

Prices do not include taxes or inspection fees. Prices are published at the close of the business day.

Mid-Western prices in the tables were gathered from refiners with offices located in Chicago and the surrounding territory. While the prices are quoted on a Group 3 (Oklahoma) freight basis, this is in accordance with the custom of the oil industry which uses Group 3 as a price basis for the ease of comparing prices even when the material originates in another refining district. Other refinery prices are given by and for the particular refining district where the material is made and from which it is shipped.

When prices obtained by OILGRAM do not conform to these conditions the exception and the new conditions are noted in the news lead or in conjunction with the price table by footnote or otherwise, for the particular refinery or sales district involved.

Crude oil and products covered by OILGRAM'S news and price service, except where noted, have been represented to the publisher as fully up to the customary trade specifications indicated and according to the generally accepted methods of test; and all crude oil and all products thereof as having been lawfully produced and transported.

Any apparent error should be reported to the nearest OILGRAM or National Petroleum News office at once as no correction will be made after the second issue of the OILGRAM or National Petroleum News following its publication.

Summary of Daily Gasoline Prices (July 16 to July 22)

U. S. Motor, (ASTM octane)	Latest Prices Mon. July 22	July 16	July 17	July 18	July 19
72-74 octane:					
Oklahoma	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
Mid-Western (Group 3 basis)	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.75 – 4.875	4.75 – 4.875	4.75 – 4.875	4.75 – 4.875	4.75 – 4.875
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.00 (2)	5.00 (2)	5.00 (2)	5.00 (2)	5.00 (2)
East Texas	.....	.....	.....	.....	.....
63-66 octane:					
Oklahoma	4.375– 4.75	4.375– 4.75	4.375– 4.75	4.375– 4.75	4.375– 4.75
Mid-Western (Group 3 basis)	4.375– 4.75	4.375– 4.75	4.375– 4.75	4.375– 4.75	4.375– 4.75
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.50 – 4.625	4.50 – 4.625	4.50 – 4.625	4.50 – 4.625	4.50 – 4.625
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.625 (2)	4.625 (2)	4.625 (2)	4.625 (2)	4.625 (2)
60 octane & below:					
Oklahoma	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
Mid-Western (Group 3 basis)	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.00	4.00	4.00	4.00	4.00
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.00 (2)	4.00 (2)	4.00 (2)	4.00 (2)	4.00 (2)
Motor Gasoline, 72-74 octane (ASTM):					
New York harbor	5.75 – 6.70	6.00 – 6.70	6.00 – 6.70	5.75 – 6.70	5.75 – 6.70
Philadelphia district	6.00 – 7.00	6.25 – 7.00	6.25 – 7.00	6.00 – 7.00	6.00 – 7.00
Baltimore district	6.25 – 7.75	6.25 – 7.75	6.25 – 7.75	6.25 – 7.75	6.25 – 7.75
Motor Gasoline:					
74-76 Octane: (L-3)					
Bradford-Warren (Western Penna.)	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Other Districts (Western Penna.)	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
72-73 Octane: (L-3)					
Bradford-Warren (Western Penna.)	5.75	5.75	5.75	5.75	5.75
Other Districts (Western Penna.)	5.75	5.75	5.75	5.75	5.75

REFINERY PRICES

Gasoline—U. S. Motor (ASTM Octane) except where otherwise specified

Prices Effective	July 22	July 15
OKLAHOMA		
72-74 oct.	4.75 – 5.25	4.75 – 5.25
63-66 oct.	4.375– 4.75	4.375– 4.75
60 oct. & below	4.00 – 4.25	4.00 – 4.25
60-62 400 e.p.	4.00 (2)	4.00 (2)
MID-WESTERN		
72-74 oct.	4.75 – 5.25	4.75 – 5.25
63-66 oct.	4.375– 4.75	4.375– 4.75
60 oct. & below	4.00 – 4.25	4.00 – 4.25
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
72-74 oct.	4.75 – 4.875	4.75 – 4.875
63-66 oct.	4.50 – 4.625	4.50 – 4.625
60 oct. & below	4.00	4.00
60-62, 400 e.p.	4.00	4.00
W. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
72-74 oct.	5.00 (2)	5.00 (2)
63-66 oct.	4.625 (2)	4.625 (2)
60 oct. & below	4.00 (2)	4.00 (2)
CENT. W. TEX. (Prices to truck transports)		
72-74 oct. (L-3)	5.00 (1)	5.00 (1)
67-69 oct. (L-3)	4.50 (1)	4.50 (1)
62 oct. & below (L-3)	4.00 (1)	4.00 (1)
E. TEX.		
72-74 oct.	.....	.....
60-62, 400 e.p.	.....	.....
KANSAS (For Kansas destinations only)		
72-74 oct.	5.00 – 5.125	5.00 – 5.125
63-66 oct.	4.625– 4.75	4.625– 4.75
60 oct. & below	4.25 – 4.375	4.25 – 4.375
N. LA. (For shipment to La. & Ark.)		
72-74 oct.	.....	5.125–5.375 (1)
63-66 oct.	.....	4.625–4.875 (1)
60 oct. & below	.....	4.25 –4.50 (1)

Prices Effective	July 22	July 15
ARK. (FOB Ark. plant of one refiner, for shipment to Ark. & La.)		
72-74 oct.	4.875	4.875
70-72 oct.	4.625	4.625
60 oct. & below	4.25	4.25
WESTERN PENNA. (Motor gasoline.)		
Bradford-Warren:		
74-76 oct. (L-3)	6.00 – 6.25	6.00 – 6.25
72-73 oct. (L-3)	5.75	5.75
Naphtha		
Untreated naphtha	.....	.....
Stoddard Solvent	.....	.....
Other districts:		
74-76 oct. (L-3)	5.75 – 6.00	5.75 – 6.00
72-73 oct. (L-3)	5.75	5.75
Naphtha		
Untreated naphtha	5.50	5.50
Stoddard Solvent	5.75 – 6.00	5.75 – 6.00
CENTRAL MICHIGAN (f)		
U.S. Motor: (Oct. L-3)		
72-74 oct.	6.50 – 7.25	6.50 – 7.25
67-69 oct.	5.50 – 6.25	5.50 – 6.25
Str.-Run Gasoline	(g) 4.25–5.00	(g) 4.25–5.00
OHIO (S. O. Ohio quotations for statewide delivery and subject to exceptions for local price disturbances)		
72-74 oct.	7.25	7.25
CALIFORNIA U.S. Motor:		
58-61 grav., 375-400 e.p., 65 oct. & above	6.50 – 8.00	6.50 – 8.00
54-58 grav., for outside state shipment	5.25 – 6.50	5.25 – 6.50
54-58 grav., for instate shipment	4.75 – 6.25	5.00 – 6.25

Kerosine, Gas & Fuel Oils

Prices Effective	July 22	July 15
OKLAHOMA		
41-43 grav. w.w.	3.875 – 4.25	3.875– 4.25
42-44 grav., w.w.	4.00 – 4.625	4.00 – 4.625
Range Oil	3.625– 3.875	3.625– 3.875
No. 1 P.W.	3.625– 3.75	3.625– 3.75
No. 1 straw	3.375–3.625 (2)	3.375–3.625 (2)
No. 2 straw	3.25 – 3.625	3.25 – 3.625
No. 2 dark	3.375 (1)	3.375 (1)
U.G.L. gas oil	3.25 (1)	3.25 (2)
No. 3 fuel	3.25 – 3.375	3.25 –3.375
No. 6 fuel	$0.55 (2)	$0.55 (2)
14-16 fuel	$0.85 (1)	$0.85 (1)
MID-WESTERN		
41-43 grav. w.w.	3.875– 4.25	3.875– 4.25
42-44 grav. w.w.	4.00 – 4.625	4.00 – 4.625
Range oil	3.75–3.875 (2)	3.75 –3.875 (2)
No. 1 p.w.	3.625– 3.75	3.625– 3.75
No. 1 straw	3.50–3.625 (2)	3.50 –3.625 (2)
No. 2 straw	3.375–3.50	3.375– 3.50
No. 3	3.125–3.375	3.125– 3.375
No. 5	$0.75 (1)	$0.75 (1)
No. 6	$0.50–$0.55 (2)	$0.50–$0.55 (2)
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
41-43 grav. w.w.	3.875–4.00 (2)	3.875–4.00 (2)
No. 1 P.W.	3.875 (2)	3.875 (2)
E. TEX.		
41-43 grav. w.w.	.....	.....
KANSAS (For Kansas destinations only)		
41-43 gravity w.w.	4.25 (1)	4.125– 4.25
42-44 gravity w.w.	4.1875–4.50	4.1875–4.50
No. 1 p.w.	3.875	3.875
No. 6 fuel	$0.60–$0.625 (2)	$0.60–$0.625 (2)
N. LA. (For shipment to La. and Ark.)		
41-43 grav. w.w.	.....	3.875–4.00 (1)
10-14 gravity	.....	$0.65–$0.70 (1)

(f) Prices FOB Central Michigan refinery group basis for shipment within Michigan; shipments may originate at plants outside Central group. (g) Excluding Detroit shipment. (h) For shipment to Ark. points only. (i) Quotations. (j) Sale. (k) Sales.

REFINERY PRICES (Continued)

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

Kerosine, Gas & Fuel Oil

(Continued)

Prices Effective	July 22	July 15
ARK. (F.o.b. Ark. plant of one refiner for shipment to Ark. and La.)		
41-43 grav. w.w.	4.375	4.375
No. 1	3.75	3.75
No. 2	3.375	3.375
28-32 zero fuel	3.25	3.25
Tractor Fuel	(h)4.25	(h)4.25
WESTERN PENNA.		
Bradford-Warren:		
45 grav. w.w.	4.75 – 5.125	4.75 – 5.125
46 grav. w.w.	5.125 (1)	5.125 (1)
36-40 gravity	4.875 – 5.00	4.875 (1)
Other districts:		
45 grav. w.w.	4.875 – 5.00	4.875 – 5.00
46 grav. w.w.	5.00 – 5.125 (2)	5.00 – 5.125
47 grav. w.w.	5.00 – 5.25	5.00 – 5.25
36-40 gravity	(i)3.875–4.125(i)	3.875–4.50
CENTRAL MICHIGAN (f)		
47-49 gravity w.w.	4.50 – 5.00	4.50 – 5.00
P.W. Distillate	4.25 – 4.50	4.25 – 4.50
No. 3 gas oil, Str.	4.00 – 4.25	4.00 – 4.25
U.G.I. gas oil	3.25 – 3.75	3.25 – 3.75
Fuel Oils (Vis. at 100):		
500-700 Vis.	2.50 3.00 (2)	2.50 – 3.00
300-500 Vis.	2.25 – 3.25 (2)	2.25 – 3.25 (2)
100-300 Vis.	3.25 – 3.50 (1)	3.25 – 3.50 (1)
CALIFORNIA		
40-43 grav. w.w.	4.50 – 6.00	4.50 – 6.00
San Joaquin Valley:		
Heavy fuel	$0.55 – $0.75	$0.55 – $0.75
Light fuel	$0.75 – $0.85	$0.75 – $0.85
Diesel fuel	2.75 – 4.00	2.75 – 4.00
Stove dist.	3.00 – 5.00	3.00 – 5.00
Los Angeles:		
Heavy fuel	$0.45 – $0.65	$0.45 – $0.65
Light fuel	$0.55 – $0.80	$0.55 – $0.80
Diesel fuel	2.25 – 4.00	2.25 – 4.00
Stove dist.	2.50 – 4.00	2.50 – 5.00
San Francisco:		
Heavy fuel	$0.80	$0.80
Light fuel	$0.90	$0.90
Diesel fuel	4.50	4.50
Stove dist.	4.50	5.50

Note: All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Lubricating Oils

WESTERN PENNA.

Viscous Neutrals — No. 3 col. Vis. at 70° F.

200 Vis. (180 at 100°) 420-425 fl.

0 p.t.	24.50 (1)	24.50 (1)
10 p.t.	23.50 (1)	23.50 (1)
15 p.t.	22.50 (1)	22.50 (1)
25 p.t.	21.00	21.00

150 Vis. (143 at 100) 400-405 fl.

0 p.t.	22.50 (1)	22.50 (1)
10 p.t.	21.50 (1)	21.50 (1)
15 p.t.	20.50 (1)	20.50 (1)
25 p.t.	19.00	19.00

Cylinder Stocks

Brt. stk., 145-155 vis. at 210°, 540-550 fl., No. 8 col.

10 p.t.	14.50 (1)	16.50 (1)
15 p.t.	13.50 (1)	15.50 (1)
25 p.t.	12.00 –13.00	14.00
600 S.R. filterable	8.00	9.00
650 S.R.	10.00	11.00
600 fl.	11.00	12.00
630 fl.	13.00	14.00

MID-CONTINENT (F.o.b. Tulsa)

Neutral Oils (Vis. at 100° F. 0 to 10 P.P.)

Pale Oils:

Vis.	Color		
60-85	No. 2	5.25 – 5.50	5.50 – 6.00
86-110	No. 2	5.25 – 6.25	5.50 – 6.25
150	No. 3	8.00 –10.25	8.00 –10.25
180	No. 3	9.00 –10.50	9.00 –10.50
200	No. 3	9.50 –12.00	9.50 –12.00
250	No. 3	10.50 –12.00	10.50 –12.00
280	No. 3	11.00 –13.75	11.00 –13.75
300	No. 3	11.50 –14.25	11.50 –14.25

Lubricating Oils (Cont'd)

Prices Effective	July 22	July 15
Red Oils:		
180—No. 5	9.00 (1)	9.00 (1)
200—No. 5	9.00 –11.00 (2)	9.00 –11.00 (2)
280—No. 5	11.50–12.50 (2)	11.50–12.50 (2)
300—No. 5	11.50–12.00 (2)	11.50 –12.00

Note: Viscous Neutrals, 15-25 p.p. generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils.

Bright Stocks:

200 Vis. at D. 210°	18.00 (1)	19.00 (1)
150-160 Vis. at 210° D:		
0 to 10 p.p.	14.00 –18.00	15.00 –18.00
10 to 25 p.p.	13.50 –17.50	14.50 –17.50
25 to 40 p.p.	13.50–17.00 (2)	14.50–17.00 (2)
150-160 vis. at 210° E.	13.00 –17.00	13.50 –17.00
120 Vis. at 210° D:		
0 to 10 p.p.	13.50 –17.125	15.00 –17.125
25 to 40 p.p.	16.00 (1)	16.00 (1)
600 S.R. Dark Green	7.00 (2)	7.00 (2)
600 S.R. Olive Green	8.00 – 9.50	8.00 – 9.50
631 S.R.	12.00 (1)	12.50 (1)
Black Oil	4.00 – 5.50 (2)	4.00 – 5.50 (2)

SOUTH TEXAS Neutral Oils

Vis.	Color		
Pale Oils: (*Vis. at 100°F*)			
100	No. 1½-2½	5.75 – 6.00	5.75 – 6.00
200	No. 2-3	7.50	7.50
300	No. 2-3	8.00	8.00
500	No. 2½-3½	9.00	9.00
750	No. 3-4	9.50	9.50
1200	No. 3-4	9.875	9.875
2000	No. 4	10.00	10.00
Red Oils:			
200	No. 5-6	7.50	7.50
300	No. 5-6	8.00	8.00
500	No. 5-6	9.00	9.00
750	No. 5-6	9.50	9.50
1200	No. 5-6	9.875	9.875
2000	No. 5-6	10.00	10.00

CHICAGO (From Mid-Continent p.l. crude)

Neutra Oils (Vis. at 100° F. 0 to 10 p.p.)

Pale Oils

Vis.	Color		
60-85	No. 2	7.25	7.25
86-110	No. 2	7.25	7.25
150	No. 3	9.00	9.50
180	No. 3	10.00	10.50
200	No. 3	10.50	11.00
250	No. 3	11.50	12.00
Red Oils:			
180	No. 5	10.00	10.50
200	No. 5	10.00	11.00
250	No. 5	11.50	12.00
280	No. 5	12.50	12.50
300	No. 5	12.50	13.00

Note: Viscous oils, 15 to 30 p.p. are quoted 0.5c lower; 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., 0.25c lower.

Unfiltered Steam Refined: (Viscosity at 210°)

140	8.75	8.75
160	9.50	9.50
200	10.50	10.50

Bright stocks, 160 vis. at 210, No. 8 color:

0 to 10 p.p.	16.00	16.50
15 to 25 p.p.	15.00	15.50
30 to 40 p.p.	14.40	14.85
E filtered Cyl. Stock	12.50	12.50

Note: To obtain prices delivered in Chicago, add 0.25c per gal.

Natural Gasoline

(Group 3 & Breckenridge prices are to blenders on freight basis shown below. Shipments may originate in any Mid-Continent manufacturing district.)

FOB GROUP 3

Grade 26-70	(k)1.50	(j)1.50

FOB BRECKENRIDGE

Grade 26-70	(i)1.25	(k)1.25

CALIFORNIA (FOB plants in Los Angeles basin)

75-85, 350-375 e.p. for blending	5.75 – 6.25	5.75 – 6.25

Naphtha and Solvent

Prices Effective	July 22	July 15
(FOB Group 3)		
Stoddard solvent	5.875	5.875
Cleaners' naphtha	6.375	6.375
V. M. & P. naphtha	6.375	6.375
Mineral spirits	5.375	5.375
Rubber solvent	6.375	6.375
Lacquer diluent	6.625– 7.375	6.625– 7.375
Benzol Diluent	7.875–8.375	7.875– 8.375

Wax

White Crude Scale:

WESTERN PENNA. (Bbls., C.L., N. Y.)		
122-124 A.m.p.	2.25 – 3.00	2.75 – 3.25
124-126 A.m.p.	2.25 – 3.00	2.75 – 3.25
OKLAHOMA (Bbls. or burlap bags, C.L.)		
124-126 A.m.p.	2.50–2.75 (1)	3.25 (1)

CHICAGO (FOB Chicago district refinery of one refiner, in bags or slabs loose, carloads. Melting points are EMP (ASTM) methods; add 3° F. to convert into AMP.)

Fully refined:		
122-124 (bags only)	5.60	(m)5.60
125-127	5.60	5.60
127-129	5.85	5.85
130-132	6.15	6.15
132-134	6.40	6.40
135-137	7.15	7.15

Petrolatums

WESTERN PENNA. (Bbls., carloads; tank cars, 0.5c per lb. less.)		
Snow White	5.125– 6.125	5.125– 6.125
Lily White	4.375– 5.125	4.375– 5.125
Cream White	3.625– 4.125	3.625– 4.125
Light Amber	2.625– 3.00	2.625– 3.00
Amber	2.375– 2.875	2.375– 2.875
Red	2.25 – 2.625	2.25 – 2.625

Group 3 Freight Rates

To Division Headquarters Points of Standard Oil Co. of Indiana

	Gasoline–Kerosine		Distillate-Gas Oil-Fuel Oil	
	Cents per Cwt.	Cents per gal. 6.6 lbs.	Cents per Cwt.	Cents per gal. 7.4 lbs.
Chicago, Ill.	40	2.640	32	2.368
Decatur, Ill.	39	2.574	31	2.294
Joliet, Ill.	40	.640	32	2.368
Peoria, Ill.	39	2.574	31	2.294
Quincy, Ill.	36	2.376	29	2.146
Indianapolis, Ind.	48	3.168	39	2.886
Evansville, Ind.	46	3.036	37	2.738
South Bend, Ind.	49	3.231	**42	**3.108
Detroit, Mich.	64	4.224	51	3.774
Gd. Rapids, Mich.	61	4.026	50	3.700
Saginaw, Mich.	66	4.356	53	3.922
Green Bay, Wis.	51	3.366	41	3.034
Milwaukee, Wis.	43	2.838	34.5	2.553
LaCrosse, Wis.	46	3.036	37	2.738
Min'ap'ls-St. Paul	46	3.036	37	2.738
Duluth, Minn.	52	3.432	41.5	3.071
Mankato, Minn.	46	3.036	37	2.738
Des Moines, Ia.	36	2.376	29	2.146
Davenport, Ia.	39	2.574	31	2.294
Mason City, Ia.	42	2.772	33.5	2.479
St. Louis, Mo.	33	2.178	26.5	1.961
Kansas City, Mo.	28	1.848	22.5	1.665
St. Joseph, Mo.	28	1.848	22.5	1.665
Fargo, N. D.	63	4.158	50.5	3.737
Minot, N. D.	83	5.478	66.5	4.921
Huron, S. D.	53	3.498	42.5	3.145
Wichita				
From Ponca City	7.5	*0.495	7.5	†0.555
From Tulsa	12.5	*0.825	12.5	†0.925
From Cushing	11	*0.726	11	†0.814

*This rate also includes distillate rate at 6.6 lbs. per gal.

**This rate applies only to residual fuel and gas oil. Combination rate of 32c per cwt. at 7.4, Group 3 to Chicago, plus 9c per cwt. at 6.6, Chicago to South Bend, total of 2.962c per gal., applies to petroleum fuel oil distillate not suitable for illuminating purposes.

†This rate is exclusive of distillate which is based on 6.6 lbs. per gal. from Ponca City, Tulsa and Cushing, Okla., to Wichita. Includes only gas oil and fuel oil.

NOTE: There is no Group 3 rate to Wichita, Kans.

(f) Prices FOB Central Michigan refinery group basis for shipment within Michigan; shipments may originate at plants outside Central group. (g) Excluding Detroit shipment. (h) For shipment to Ark. points only. (i) Quotations. (j) Sale. (k) Sales. (l) Pittsburgh district prices excluded. (m) Correction: This price correct for July 15.

SEABOARD PRICES EXPORT AND COASTWISE

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

Atlantic Coast

(Prices are of refiners, FOB their refineries & their tanker terminals, & of tanker terminal operators, FOB their terminals)

Prices Effective July 22

MOTOR GASOLINE (ASTM Octane)

District:	72-74 Oct.	68-70 Oct.	65-66 Oct.	60-64 Oct.	KEROSINE and/or NO. 1 FUEL
N. Y. Harb.	5 75 – 6 70	5 75 – 6 25	5 75 – 6 25	6 00 – 6 25	5 10
N. Y. Harb., barges	5 50 – 6 50	5 50 – 5 75	5 50 – 6 25	5 75 – 6 00	5 00
Albany	6 20	.....	.....	.....	5 20 – 5 50
Philadelphia	6 00 – 7 00	6 25 – 6 75	6 25 (2)	5 75 – 6 75	5 00 – 5 75
Baltimore	6 25 – 7 75	6 25 – 6 50	6 25 (2)	6 25 – 6 50	5 00 – 5 50
Norfolk	6 50 – 7 75	6 25 – 6 50 (2)	6 25 (1)	6 00 6 25 (2)	5 00 – 5 50
Wilm'ton	6 50 – 7 55	6 25 – 6 50	6 25 (1)	6 00 – 6 50	5 00 – 5 25
Char'ston	6 50 – 7 55	7 00 (1)	6 25 (1)	6 00 – 6 75	5 00 – 5 50
Savannah	6 50 – 7 00	6 25 – 7 00	.....	6 00 – 6 25	5 25 – 5 625
Jacksonville	6 50 – 7 00	6 25 – 6 50	.....	5 75 – 6 25	5 25 – 5 75
Miami	6 50 6 75 (2)	6 50 (1)	.....	5 75 6 25 (2)	5 50 –5 75 (2)
Tampa	6 25 – 7 00	6 00 – 6 50 (2)	.....	6 00 6 25 (2)	5 50 – 5 75
Pensacola	6 50 6 75 (1)	.....	.....	6 00 6 25 (1)	5 50 –5 625 (1)
Mobile	6 50 – 6 75	6 00 (1)	.....	5 75 – 6 25	5 375–5 50 (2)
Portland	6 30	6 20 (1)	.....	.....	5 30
Boston	6 00 – 6 50	6 00 (2)	6 00 – 6 05	6 05 (2)	5 20
Providence	6 20 – 6 50	.....	5 95 (2)	5 95 – 6 00	5 20

FUEL OILS

	No. 2	No. 3	No. 5	No. 6
N. Y. Harb.	1 10	1 10	$1 55 – $1 70	$1 25 – $1 35
N. Y. Harb., barges	1 30	1 30	.....	.....
Albany	1 50 (2)	1 50 (1)	$1 95 (1)	$1 55 (1)
Philadelphia	1 50 – 5 00	1 25 – 5 00	$1 46 –$1 575	$1 25 –$1 50
Baltimore	1 25	4 00 – 4 25	$1 47 (1)	$1 25 –$1 35
Norfolk	1 25	1 25 (1)	.....	$1 35 (2)
Wilmington	1 25	.....	.....	.....
Charleston	1 25 (2)	.....	.....	$1 30 (2)
Savannah	.....	.....	.....	$1 30 (1)
Jacksonville	1 75 (1)	1 75 (1)	.....	$1 30 (2)
Tampa	1 75 (1)	.....	.....	$1 25 (2)
Portland	1 60	1 60	$1 95 (1)	$1 45 –$1 55
Boston	1 50	1 50	$1 65 (2)	$1 35
Providence	1 50	1 50	$1 60 – $1 65	$1 35

	Bunker C Fuel Ships' bunkers (Ex Lighterage)	Diesel Oil Ships' bunkers (Ex Lighterage)	Diesel Oil Shore Plants	Gas House 28-34	Gas Oil Gravity
N. Y. harbor	$1 25 – $1 35	$1 80 – $1 85	1 40 – 1 60	1 50	
Albany	$1 55 (1)	$1 90	1 50	.....	
Philadelphia	$1 25 – $1 50	$1 80 – $1 95	.....	.....	
Baltimore	$1 35	$1 80	1 25	1 25	
Norfolk	$1 35	$1 80	1 25	1 25	
Charleston	$1 30	$1 80 – $1 90	1 25	1 25	
Savannah	$1 30 (1)	$1 90 – $1 995	.....	.....	
Jacksonville	$1 30	$1 90 – $1 995	.....	.....	
Tampa	$1 25	$1 90 – $1 995	.....	.....	
Portland	$1 45 – $1 55	$1 90	1 60	1 70	
Boston	$1 35	$1 80	1 50	1 60	
Providence	$1 35	$1 80	1 50	1 60	

New York Export Lubes

(Penna. Products in bbls. FAS New York)

Prices Effective	July 22	July 15
Bright stock:		
Light, 25 p.t.	22 00 22 50 (2	22 00 22 50 (2)
Neutral oil:		
200 3 color, 25 p.t.	27 00 (1)	27 00 (1)
150 3 color, 25 p.t.	25 00 26 50 (2	25 00 26 50 (2)
600 s.r., unfilt	16 50 17 50 (2	16 50 17 50 (2)
650 s.r., unfilt	17 50 19 50 (2	17 50 19 50 (2)
600 fl. s.r.	18 50 20 50 (2	18 50 20 50 (2)
630 fl., s.r.	21 00 22 50 (2	21 00 22 50 (2)

Wax

(A.S.T.M. Tests. Melting points, however, are A.M.P., 3° higher than F.M.P. Export prices, FAS, c.l. Domestic prices, FOB refineries, in bags, c.l., with 0.2c discount allowed for shipment in bulk, except where noted. Scale solid; fully refined slabs in bags)

Prices Effective July 22

	New Orleans Export	N. Y. Domestic	N. Y. Export
Crude Scale:			
124-6 Yellow	2 50 (1)	.....	2 50 (1)
122-4 White	.....	2 25 2 50	2 25 3 00
124-6 White	2 50 2 75 (2)	2 25 2 625	2 25 3 00
Fully Refined:			
123-5	.....	5 60	5 875 (1)
125-7	6 00 (1)	5 60	6 00 (2)
128-30	6 25 (1)	5 60 5 70 (1)	6 25 (2)
130-2	6 50 (1)	5 85 (1)	6 50 (2)
133-5	7 00 (1)	6 15 (1)	7 00 (2)
135-7	7 25 (1)	6 40 (2&1)	7 25 (2)
103-11 White Match	.....	.....	1 00 (I&j)

Naphtha

Prices Effective July 22	V.M.&P. Naphtha	Mineral Spirits
Baltimore	9 50	8
New York Harbor	8 8 9 5	8 2 9
Philadelphia district	10	8 9
Boston	9 5	9 25 –9 50
Providence	9 5	9 5
†Ohio points, delivered	8 75	*8 25

*This is on rubber solvent.

†Ohio prices are those of S. O. Ohio. Its prices for D.C. naphtha, special Varnolene, Varnolene and Sohio Solvent are same as for V.M.&P.

Pacific Export

(Quotations at seaboard, Los Angeles, cargo lots, except where otherwise noted.)

Prices Effective	July 22	July 15
375 e.p. blend, 70 oct.	5 00 – 5 875	5 00 – 5 875
390 e.p. blend, 68 oct.	4 875 – 5 75	4 875 – 5 75
390 e.p. blend, 66 oct.	4 875 – 5 625	4 875 – 5 625
400 e.p. blend, 65 oct. min.	4 75 – 5 50	4 75 – 5 50
U. S. Motor, under 65 octane	4 75 – 5 375	4 75 – 5 375
38-40 grav. w.w. kero., 150 fire point	4 50 – 5 00	4 50 – 5 00
41-43 grav., w.w. kero.	4 75 – 5 00	4 75 – 5 00
44 grav., w.w. kero.	5 00 – 5 50	5 00 – 5 50
Diesel fuel, 24 & above	$1 25 – $1 30	$1 25 – $1 30
Diesel fuel, under 24	$1 15 – $1 25	$1 15 – $1 25
30-34 grav. diesel (gas oil) Pac. Spec. 200	$1 25 – $1 35	$1 25 – $1 35
Grade C fuel, Pac. Spec. 400	$0 60 – $0 65	$0 65 – $0 75
In Ships' Bunkers, or deep tank lots:		
Diesel fuel, Pac. Spec. 200	$1 35 – $1 45	$1 35 – $1 45
Grade C fuel, Pac. Spec. 400	$0 85 – $0 90	$0 75 – $0 90

Pacific Export (Cont'd)

Prices Effective	July 22		July 15	
Cased Goods: (Per case)				
U. S. M.	$1 45	$1 55	$1 45	$1 55
375-400 e.p. blend, 65 oct. & above	$1 60	$1 70	$1 60	$1 70
400 e.p. blend, under 65 oct.	$1 50	$1 60	$1 50	$1 60
40-43 grav. w.w. kero., 150 fire point	$1 40	$1 50	$1 40	$1 50
Kero., p.w.	$1 30	$1 40	$1 30	$1 45

Tanker Rates

(Approximate rates. Cents per bbl.)

	Last Paid	Owners Ask
Gulf-N. Atlantic: (not E. of N.Y.)		
Hvy. Crude & fuel, (10 to 19.9 gravity)	21	21
Light Crude, (30 Grav. or Lighter)	19	19
Gasoline	21	19-21
Kerosine	22	20-22
No. 2 Fuel	23	21-23

Gulf Coast

(Prices for sales made or firm offers reliably reported for sales pending in cargoes FOB ship at Gulf for domestic and export for minimum of 20,000 bbls. Prices are by refiners only to other refiners, export agents, or to large tanker terminal operators at the customary trade specifications noted.)

MOTOR GASOLINE (ASTM Octane)

Prices Effective July 22

	60-62 Gravity, 400 e.p.	61-63 Gravity, 390 e.p.	64-66 Gravity, 375 e.p.
72-74 oct. leaded	4 125–4 75	4 125–4 25	4 25 –4 375
70 oct. unleaded	4 50 –4 75	4 50 –4 75	4 625–4 875
68 oct. unleaded	4 125–4 75	4 125– 4 375	4 25 –4 50
65 oct. unleaded	4 00 –4 625	4 00 –4 125	4 125–4 25
60 oct. unleaded	4 00 – 4 50	4 00	4 00 –4 125

KEROSINE, GAS & FUEL OILS

	July 22		July 15	
41-43 grav. w.w. kero.	4 00	4 625	4 00	4 625
Gas Oil (Less than ½ of 1% sulfur)				
Below 43 diesel index	3 00	3 375	3 00	3 375
43-47 diesel index	3 00	3 375	3 00	3 375
48-52 diesel index	3 25	3 625	3 25	3 625
53-57 diesel index	3 50	3 75	3 50	3 75
58 & above	3 75	4 125	3 75	4 125
No. 2 fuel	3 375	3 625	3 25	3 625
Diesel oil, ships' bunkers, ex lighterage	$1 50	$1 70	$1 50	$1 70
Grade C, ships' bunkers, ex lighterage	$0 80	$0 90	$0 80	$0 95
Grade C cargoes	$0 80	$0 87	$0 80	$0 87

MID-CONTINENT LUBES

(At Gulf; in packages, FAS.; in bulk FOB terminals)

July 22

	New Steel Drums	Bulk
200 vis. D. 210 brt. stock	25 50 26 80 (2	19 80 20 80 (2)
150 vis. D 210 brt. stock 0-10 p.p.	21 50 22 80 (2	15 80 16 80 (2)
10-25 p.p.	21 00 (1)	15 30 (1)
100 vis. D 210 brt. stock 0-10 p.p.	21 00 (1)	15 30 (1)
10-25 p.p.	20 50 (1)	14 80 (1)
200 vis. No. 3 col. neutral: 0-10 p.p.	17 00 (1)	11 30 (1)

SOUTH TEXAS LUBES

(Vis. at 100°, c. t. 0, blk. expt. shp., FOB terminals)

		July 22		July 15	
Untillered Pale Oils:					
Vis.	Color				
100	No. 3	6 00	6 50	6 00	6 50
200	No. 3	7 50	8 50	7 50	8 50
300	No. 3	8 00	9 00	8 00	9 00
500	No. 3½	9 00	10 50	9 00	10 50
750	No. 4	9 50	11 00	9 50	11 00
1200	No. 4	10 00	13 50	10 00	13 50
2000	No. 4	10 25		10 25	
Red Oils:					
Vis.	Color				
100	No. 5-6	6 00	6 50	6 00	6 50
200	No. 5-6	7 50	8 50	7 50	8 50
300	No. 5-6	8 00	9 00	8 00	9 00
500	No. 5-6	9 00	10 50	9 00	10 50
750	No. 5-6	9 50	11 00	9 50	11 00
1200	No. 5-6	10 00	13 50	10 00	13 50
2000	No. 5-6	10 25		10 25	

(i) Shipment in bags or in bulk. (j) Shipment in tight barrels.

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes, where levied are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NPN for Feb. 21, 1940. These prices in effect July 22, 1940 as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. New Jersey

Esso (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
*Atlantic City, N. J.	7.6	8.7	4.5	7.7
*Newark, N. J.	7.6	8.7	4.5	7.7
Annapolis, Md.	8.35	9.35	5.5	9.5
Baltimore, Md.	7.75	8.75	5.5	8.5
Cumberland, Md.	9.15	10.15	5.5	10
Washington, D. C.	8	9	3.5	9.5
Danville, Va.	8.95	11.45	6.5	11
Norfolk, Va.	7.75	10.25	6.5	10.5
Petersburg, Va.	8.05	10.55	6.5	11.2
Richmond, Va.	8.05	10.55	6.5	10.5
Roanoke, Va.	9.25	11.75	6.5	11
Charleston, W. Va.	8.55	11.05	6.5	12.6
Parkersburg, W. Va.	7.85	9.85	6.5	11.2
Wheeling, W. Va.	8.85	10.75	6.5	11.8
Charlotte, N. C.	9.9	10	7.5	11.8
Hickory, N. C.	10.45	11.95	7.5	12.3
Mt. Airy, N. C.	10.3	11.8	7.5	12.2
Raleigh, N. C.	9.65	9	7.5	11.5
Salisbury, N. C.	9.95	9	7.5	11.9
Charleston, S. C.	7.75	10.25	7.5	9.25
Columbia, S. C.	8.6	11.1	7.5	11.5
Spartanburg, S. C.	9.3	11.8	7.5	12.2

	Mineral Spirits T.W.	V.M.&P. T.W.
Newark, N. J.	11.5	15.5
Baltimore, Md.	15.5	....
Washington, D. C.	15	....

	Fuel Oils—T.W. No. 1	No. 2	No. 4
Atlantic City, N. J.	7.7	6.4	6.4
Newark	7.7	6.4	6.4
Annapolis, Md.	....	6.25	....
Baltimore	7	6.25	5.75
Washington, D. C.	7.25	6.50	6.50
Norfolk, Va.	7	6	6
Petersburg	7.25	6.25	....
Richmond	7.25	6.25	6.25
Charlotte, N. C.	8.75	7.50	....
Hickory	....	7.75	....
Raleigh	8.75	7.25	....
Charleston, S. C.	8.25	6.75	....
Columbia	9.20	7.70	....
Spartanburg	10.00	8.50	....

*Effective Sept. 14, 1939, minimum retail resale price of 11.9c posted thru New Jersey.

Discounts:

Esso gasoline—to undivided dealers, 0.5c off dealer t.w. price, thru territory, except New Jersey. While above posted prices continue at Atlantic City and Newark, dealers will pay net price of 8.6c per gal. for Esso; dealers having pumps marked only Esso, Esso Extra and Standard White gasoline will pay 8.1c per gal. for Esso.

Kerosine—1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore city contract not necessary) except no discount in state of New Jersey.

Naphthas—To buyers taking following quantities at one time: Newark, 2c per gal. on 200 gals. or more, less than 200 gals. 0.5c higher price; Baltimore, 2c off on 25 to 100 gals. and 3c on over 100 gals.; Washington, 2c off to contract buyers.

Socony-Vacuum Oil Co., Inc.

Socony Mobilgas (*Regular Grade*)

	Consumer Tank Car	"Split" Dealer T.W.	Gasoline Taxes	†† Kerosine T.W.
Metropolitan N. Y. City: Boroughs of Manhattan, Bronx and Brooklyn (Kings and Queens)	6.7	8	*5.5	7.9
Borough of Richmond (Staten Is.)	6.7	7	*5.5	7.9
Albany, N. Y.	6.2	7	5.5	7.6
Binghamton, N. Y.	7.1	7.9	5.5	9.1
Buffalo, N. Y.	7.3	8.1	5.5	7.5
Jamestown, N. Y.	7.3	8.3	5.5	7.4
Plattsburg, N. Y.	6.7	9.1	5.5	8.2
Rochester, N. Y.	7.8	8.7	5.5	8.1
Syracuse, N. Y.	7.2	7.8	5.5	8.5
Bridgeport, Conn.	6.1	7	4.5	7.8
Danbury, Conn.	7.3	8	4.5	8.5
Hartford, Conn.	6.5	7	4.5	7.5
New Haven, Conn.	6.1	6.5	4.5	7
Bangor, Me.	6.7	7.6	5.5	8.1
Portland, Me.	6.3	8.3	5.5	7.7
Boston, Mass.	6.3	7.3	4.5	8
Concord, N. H.	7	9.2	5.5	8.6
Lancaster, N. H.	7.8	10.3	5.5	9.6
Manchester, N. H.	6.9	7.5	5.5	8.8
Providence, R. I.	6.2	7.7	4.5	8
Burlington, Vt.	6.9	9.0	5.5	8.2
Rutland, Vt.	7	9	5.5	8.6

	Mineral Spirits T.W.	V.M.&P. T.W.
Buffalo, N. Y.	9.5	10.6
†New York City	8.2	8.8
Rochester, N. Y.	10.4	11.4
Syracuse, N. Y.	11.2	12.3
Boston, Mass.	11	11
Bridgeport, Conn.	11.5	12
Hartford, Conn.	11	11.5
Providence, R. I.	11	12

Fuel Oils—T. W.

	Mobilheat & Mobilheat Heavy
New York City	6.3
Albany, N. Y.	6.4
Rochester, N. Y.	6.9
Boston, Mass.	6.4
Bangor, Me.	6.9
Manchester, N. H.	7.2
Burlington, Vt.	7.1
Hartford, Conn.	6.6
New Haven, Conn.	6.6
Providence, R. I.	6.4

*Plus 2% city sales tax computed at time of each sale.

†Prices apply to consumers only in quantities over 1000 gals annually; for quantities under 1000 gals. annually, add 0.5c per gal.

††Same prices apply for No. 1 fuel.

Discounts: Gasoline—To undivided dealers, 0.5c less than "split" dealer t.w.

Atlantic Refining

Atlantic White Flash Gasoline (*Regular Grade*)

	Commercial T.C.	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Philadelphia, Pa.	7	8.5	5.5	10.5
Pittsburgh	8	9.5	5.5	10.5
Allentown	8	9.5	5.5	10.5
Erie	8	9.5	5.5	10
Scranton	7	9	5.5	10.5
Altoona	8	10	5.5	10.5
Emporium	8	10	5.5	10.5
Indiana	8	10	5.5	10.5
Uniontown	8	10	5.5	10.5
Harrisburg	8	9.5	5.5	10.5
Williamsport	8	9.5	5.5	10
Dover, Del.	....	8.5	5.5	10.5
Wilmington	....	8.5	5.5	10
Boston, Mass.	....	7.3	4.5	8.2
Springfield, Mass.	....	8.5	4.5	8.7
Worcester, Mass.	....	7.3	4.5	8.1
Fall River, Mass.	....	8	4.5	8.2
Hartford, Conn.	....	7	4.5	8.2
New Haven, Conn.	....	6.9	4.5	8.2
Providence, R. I.	....	7.7	4.5	8.2
Atlantic City, N. J.	....	8.6	4.5	8.4
Camden, N. J.	....	8.6	4.5	8.4
Trenton, N. J.	....	8.6	4.5	8.4
Annapolis, Md.	....	9.35	5.5	10
Baltimore, Md.	....	8.75	5.5	9
Hagerstown, Md.	....	9.85	5.5	10
Richmond, Va.	....	10.55	6.5	10.5
Wilmington, N. C.	....	10.35	7.5	10.8
Brunswick, Ga.	....	8	7.5	*9
Jacksonville, Fla.	....	6	8.5	10

	Mineral Spirits T.W.†	V.M.&P. T.W.†
Philadelphia, Pa.	12	14.5
Lancaster, Pa.	13.5	16
Pittsburgh, Pa.	14.5	14.5

	Fuel Oils—T.W. 1	2	3	4	5	6
Phila., Pa.	8.5	6.5	6.5	6.5	4.25	3.50
Allentown, Pa.	8.5	6.5	6.5	6.5	....	....
Wilmington, Del.	8.00	6.5	6.5	6.5	....	....
Springfield, Mass.	8.7	6.8	....	....	....	....
Worcester, Mass.	8.1	6.7	....	6.7	....	....
Hartford, Conn.	8.2	6.6	....	6.6	....	....

*Does not include 1c Georgia kerosine tax.

†Mineral Spirits prices also apply to Stoddard Solvent; V.M.&P. prices also apply to Light Cleaners Naphtha.

Discounts:

Gasoline—to undivided dealers, 0.5c off dealer t.w., except Georgia & Florida dealer t.w. and undivided dealer t.w. prices are same. At Scranton, Pa., 1c per gal. voluntary discount allowed to dealers only.

Kerosine—Thru Penna. & Delaware, 2c off t.w. price on t.w. deliveries of 25 gals. or more at one time.

Naphthas—Philadelphia, 200 gals. or more at one time, 2c off Lancaster, contract buyers taking 1000 gals. or more per year, one drum up, 2c off; non-contract buyers, 200 gals. or more at one time, 2c off. Pittsburgh, 500 gals. or more at one time, 2c off.

S. O. Ohio

***Sohio X-70 Gasoline (*Regular Grade*)**

	Consumer T.W.	Divided Dlr.	‡S.S.	Gasoline Taxes	†Kerosine T.W.
Ohio, Statewide	10.5	9.5	12.5	5.5	8
Akron	10.5	8	9.5	5.5	8
Cincinnati	10.5	9	11.5	5.5	8
Cleveland	10.5	8.5	11	5.5	8
Columbus	10.5	9	11.5	5.5	8
Dayton	10.5	9	11.5	5.5	8
Marietta	10.5	9	11.5	5.5	8
Portsmouth	10.5	9.5	12.5	5.5	8
Toledo	10.5	8	10	5.5	8
Youngstown	10.5	8.5	11	5.5	7.5

S. O. Ohio (Cont'd)

Esso Aviation Gasoline—Thru Ohio

	Consumer T.W.	Gasoline Taxes
74 octane	15.5	5.5
80 octane	16.5	5.5
87 octane	17.5	5.5

†Naphthas — Statewide	T.W.
S.R. Solvent	12.75
D.C. Naphtha	13.25
V.M.&P. Naphtha	13.25
Varnolene	13.25
Sohio Solvent	13.25

††Fuel Oils—T.W.

	No. 1	No. 2	No. 3
Toledo	7.00	7.00	6.50
Rest of Ohio	7.50	7.50	7.00

*Renown (third-grade) prices are same as X-70 unless otherwise noted.

†Kerosine prices are ex 1c state tax. Naphtha prices are ex 1.5c federal & 4c state tax.

‡Prices at company-operated stations.

††Prices are for full compartment hose dumps; bucket dumps are 0.5c per gal. higher.

Discounts:

X-70 gasoline—to undivided dealers, 0.5c off dealer t.w.

Esso aviation—on contract to hangar operators and resellers, 2c off consumer t.w.

Naphthas—to contract consumers off t.w. prices: 300 to 999 gals., 0.5c; 1000 to 2499 gals., 0.75c; 2500 to 4999 gals., 1c; 5000 or more gals., 1.5c.

S. O. Kentucky

Crown Gasoline (*Regular*)
Standard (*Third Grade*)

	†Net Dealer Crown	Standard	Gasoline Taxes	Kerosine T.W.
Covington, Ky.	8.5	7.5	6.5	9.5
Lexington, Ky.	9.5	8	6.5	10
Louisville, Ky.	8.5	6.5	6.5	9
Paducah, Ky.	9	8	6.5	9
Jackson, Miss.	9	8	7.5	*9
Vicksburg, Miss.	9	8	7.5	*8.5
Birmingham, Ala.	9.5	8	*8.5	9
Mobile, Ala.	8.5	7	*9.5	8
Montgomery, Ala.	9	7.5	*9.5	*9
Atlanta, Ga.	9	7.5	7.5	*9
Augusta, Ga.	10	9	7.5	*9
Macon, Ga.	9.5	8	7.5	*9
Savannah, Ga.	9	8	7.5	*8
Jacksonville, Fla.	7.5	6.5	8.5	8
Miami, Fla.	7.5	6.5	8.5	8
Pensacola, Fla.	8.5	7	*9.5	8.5
Tampa, Fla.	9	8	8.5	8

*Taxes: In tax column are included these city and county gasoline taxes: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Montgomery, Ala. have 1c kerosine tax, Mississippi 0.5c, not included in above prices.

†Consumer t.w. prices are same as net dealer prices except at Tampa. Tampa consumer t.w. prices are Crown 12c, Standard 10.5c.

Discounts:

Gasoline—Tampa: Temporary discount of 3c on Crown, 2.5c on Standard, off Consumer T.W. prices which see above.

S. O. Indiana

Red Crown (*Regular Grade*)
Stanolind (*Third Grade*)

	Red Dealer Prices Crown Cons. T.W.	Red Crown	Stanolind	Gasoline Taxes	Kerosine T.W.
Chicago, Ill.	11.1	9.1	6.9	4.5	10
Decatur, Ill.	9.6	8.1	6	4.5	9.5
Joliet, Ill.	11.1	9.6	6.7	4.5	10
Peoria, Ill.	11.1	8.7	8.1	4.5	10
Quincy, Ill.	10.9	9.4	8	4.5	9.8
Indianapolis, Ind.	11.8	9.3	8.9	5.5	*10.2
Evansville, Ind.	11.6	10.1	9.1	5.5	*10.5
South Bend, Ind.	11.8	10.3	8.8	5.5	*10.2
Detroit, Mich.	9.6	8.1	7.1	4.5	7.6
Grand Rapids, Mich.	9.2	7.2	7.2	4.5	9
Saginaw, Mich.	8.2	8.7	8.2	4.5	9.3
Green Bay, Wis.	11.9	10.4	9.9	5.5	10.3
Milwaukee, Wis.	11.3	9.8	9.3	5.5	10.2
La Crosse, Wis.	11.5	10	9.5	5.5	10.4
Minneapolis-St. Paul.	11.5	8.5	7.5	5.5	10.4
Duluth, Minn.	11.9	10.4	9.9	5.5	10.8
Mankato, Minn.	11.5	10	8.5	5.5	9
Des Moines, Ia.	10.9	9.4	7.9	4.5	*9.8
Davenport, Ia.	11.1	9.6	8.4	4.5	*10
Mason City, Ia.	11.3	9.8	6.9	4.5	*10.2
St. Louis, Mo.	10.7	8.7	7.5	*4.5	8
Kansas City, Mo.	10.4	8.9	6.9	*4.5	8
St. Joseph, Mo.	10.4	8.0	7.5	*4.5	7.9
Fargo, N. D.	12.7	11.2	8.8	5.5	11.6
Huron, S. D.	12	10.5	10	5.5	10.9
Wichita, Kans.	9.3	7.6	5.5	4.5	7

(Continued on next page)

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes, where levied, are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NPN for Feb. 21, 1940*

These prices in effect July 22, 1940 as posted by principal marketing companies at their headquarters offices, but subject to later correction.

S. O. Indiana (Cont'd)

Stanavo Aviation 73 Octane

Chicago, Ill.	14.9
Detroit, Mich.	16.5
Milwaukee, Wis.	15.1
Minneapolis, Minn.	15.3
St. Louis, Mo.	14.5
Kansas City, Mo.	14.2
Fargo, N. D.	16.5
Huron, S. D.	15.8

	Oleum Spirits	V.M.&P. Naphtha	Stanisol	*Taxes
	(Prices are base prices before discounts)			
Chicago	12.7	13	12.4	4.5
Detroit	15.2	14.2	15.7	4.5
K. C., Mo.	12.9	13.9	13.4	1.5
St. Louis	13.2	14.2	12.4	1.5
Milwaukee	13.8	14.8	14.3	5.5
Minnep'ls	14	15	12.7	5.5

†Fuel Oils—T.W.	No. 1 Fuel	Stanolex Furnace
Chicago	**6.50	6.50
Indianapolis	....	*7.5
Detroit	....	6.6
Milwaukee	8.2	7.7
Minneapolis	7.5	7.5
St. Louis	7.0	6.50
Kansas City	6.8	6.8

***Taxes: In gasoline tax column are included these city taxes—Kansas City, St. Joseph, and St. Louis, 1c. Indiana kerosine and fuel oil prices are ex 4c state tax; Iowa kerosine prices are ex 3c state tax. In naphtha tax column are included 1c federal tax and state taxes.**

†Prices for small-lot deliveries range up to 2c higher than above prices.

****For 400 gals. & over; 150 to 399 gals., 7.25c; 1 to 149 gals., 8.25c.**

S. O. Nebraska

Standard Red Crown Gasoline (*Regular Grade*)

	T.W.	Dealer	Gasoline Taxes	Kerosine T.W.
Omaha	10.5	9.4	6.5	9.0
McCook	11	7.9	6.5	9.5
Norfolk	11	8.9	6.5	9.9
North Platte	11.3	8.5	6.5	10.2
Scottsbluff	11.9	9	6.5	10.5

S. O. Louisiana

Esso (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Little Rock, Ark.	7.25	9.75	8	10
Alexandria, La.	6.75	9.25	8.5	*9.5
Baton Rouge, La.	6.75	9.25	8.5	*9.5
New Orleans, La.	5.75	8.25	8.5	*9
Lake Charles, La.	6.75	9.25	8.5	*9
Shreveport, La.	5.5	8	8.5	*8
Lafayette, La.	7	9.5	8.5	*9
Bristol, Tenn.	10.25	9.50	8.5	12
Chattanooga, Tenn.	9.5	7.25	8.5	12
Knoxville, Tenn.	10	11.5	8.5	12.5
Memphis, Tenn.	8	9.5	8.5	11
Nashville, Tenn.	9	8.4	8.5	11.5

***New Orleans kerosine price is ex 1c parish tax, and all Louisiana kerosine prices are ex 1c state tax.**

Discounts:

Esso gasoline—to undivided dealers, 0.5c off dealer t.w.

Humble Oil & Refining Co.

Humble Motor Fuel (*Regular Grade*)

	Tank Truck	Retail	Gasoline Taxes	Kerosine T.W.
Dallas, Tex.	6	10	5.5	6
Ft. Worth, Tex.	6	10	5.5	7
Houston, Tex.	7	11	5.5	8
San Antonio, Tex.	7	11	5.5	8

Thriftane

(Leaded, 67 Octane, Purple Gasoline)

Dallas	5	8	5.5
Ft. Worth	5	8	5.5
Houston	5	8	5.5
San Antonio	5	8	5.5

74 Octane Aviation Gasoline, Clear

	Tank Car
FOB Baytown, Tex.	8.5

***To all classes of dealers & consumers.**

The Texas Co.

	Gasoline—Dealer T.W. Fire-Chief (*Regular*)	Indian (*3rd Grade*)	Gasoline Taxes
Dallas, Tex.	6	5	5.5
Ft. Worth, Tex.	6	5	5.5
Wichita, Falls, Tex.	7	5.5	5.5
Amarillo, Tex.	7	5	5.5
Tyler, Tex.	7	5	5.5
El Paso, Tex.	8	7	5.5
San Angelo, Tex.	7	5	5.5
Waco, Tex.	6.5	4.5	5.5
Austin, Tex.	7	5	5.5
Houston, Tex.	7	5	5.5
San Antonio, Tex.	7	5	5.5
Port Arthur, Tex.	8.5	5	5.5

Continental Oil

	Conoco Bronz-z-z (*Regular*) T.W.	Demand (*3rd Grade*) T.W.	Gasoline Taxes	Kerosine T.W.
Denver, Col.	10	8	5.5	10.5
Grand Junction, Col.	12	11	5.5	12.5
Pueblo, Col.	10	10	5.5	9
Casper, Wyo.	11	10	5.5	11.5
Cheyenne, Wyo.	9	8	5.5	11
Billings, Mont.	11	10	6.5	12
Butte, Mont.	9	8	6.5	13
Great Falls, Mont.	11	9	6.5	12
Helena, Mont.	10	9	6.5	12.5
Salt Lake City, Utah	10.5	9.5	5.5	14
Boise, Ida.	*14.1	*13.1	6.5	16
Twin Falls, Ida.	*15.1	*14.1	6.5	16.5
Albuquerque, N. M.	9	8	*7	9.5
Roswell, N. M.	7	6	*7	8
Santa Fe, N. M.	9.5	8.5	*7.5	9.5
Ft. Smith, Ark.	9.5	6.25	5.5	7
Little Rock, Ark.	9.25	7.5	8	8
Texarkana, Ark.	8	5	5.5	7
Muskogee, Okla.	8	5.5	5.5	7
Oklahoma City, Okla.	6	5.5	5.5	6.5
Tulsa, Okla.	7	6	5.5	6

Conoco Special Gasoline (Aviation)

	T.W.	Gasoline Taxes
Denver, Colo.	15	5.5
Cheyenne, Wyo.	15.5	5.5
Helena, Mont.	22.5	6.5
Salt Lake City, Utah	18	5.5
Albuquerque, N. M.	14	*7

***Taxes: In gasoline tax column are included these city taxes—Albuquerque and Roswell, 0.5c; Santa Fe 1c. Idaho prices include 0.1c to cover 1-mill tax for toll bridges.**

S. O. California

Standard Gasoline (*Regular Grade*)

	Tank Truck	Retail	Gasoline Taxes	Kerosine T.W.
San Francisco, Cal.	12	13	4.5	11.5
Los Angeles, Cal.	11.5	12.5	4.5	10
Fresno, Cal.	13	14	4.5	12.5
Phoenix, Ariz.	14	15	6.5	*12.5
Reno, Nev.	14	15	5.5	13.5
Portland, Ore.	12.5	13.5	6.5	13.5
Seattle, Wash.	12.5	13.5	6.5	13.5
Spokane, Wash.	14	15	6.5	16.5
Tacoma, Wash.	12.5	13.5	6.5	13.5

Flight Gasoline (*Third Grade*)

San Francisco, Cal.	10	11	4.5	....
Los Angeles, Cal.	9.5	10.5	4.5	....
Fresno, Cal.	11	12	4.5	....
Reno, Nev.	12	13	5.5	....
Phoenix, Ariz.	11	12	6.5	....
Portland, Ore.	10.5	11.5	6.5	....
Seattle, Wash.	10.5	11.5	6.5	....
Spokane, Wash.	12	13	6.5	....
Tacoma, Wash.	10.5	11.5	6.5	....

Stanavo Aviation Gasoline

Phoenix, Ariz.	17.5	..	6.5	....
Los Angeles, Cal.	15	..	4.5	....
San Francisco, Cal.	15.5	..	4.5	....
Reno, Nev.	17.5	..	5.5	....
Portland, Ore.	16	..	6.5	....
Seattle, Wash.	16	..	6.5	....
Spokane, Wash.	19	..	6.3	....

***Taxes: Arizona kerosine prices are ex 5c state tax.**

Discounts:

To 100% dealers—3c off t.w. on Standard and Stanavo Aviation; 2c off t.w. on Flight.

Canada

PRICES OF IMPERIAL OIL LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-Star Imperial Gasoline

	(*Regular Grade*) T.W.	Gasoline Taxes	Kerosine T.W.
Hamilton, Ont.	16	8	16.50
Toronto, Ont.	16	8	16.50
Brandon, Man.	21	7	22.50
Winnipeg, Man.	20	7	21.50
Regina, Sask.	18	7	20
Saskatoon, Sask.	21	7	23
Edmonton, Alta.	18	7	20
Calgary, Alta.	16	7	18
Vancouver, B. C.	16	7	23
Montreal, Que.	16	8	16.5
St. John, N. B.	14.50	10	18
Halifax, N. S.	14.50	10	18

Discounts: To undivided dealers, 1c off t.w. price, except Maritime Provinces where undivided dealers pay t.w. price, and except Vancouver, B. C. where both divided and undivided dealers get 2c off t.w. price. Divided dealers pay t.w. price thru territory.

Price Changes

(These changes have been made in price tables)

S. O. New Jersey—Kerosine:

Baltimore t. w. cut 0.5c, July 6.

Socony-Vacuum—Mobilgas:

Albany "split" dealer t. w. cut 1c, July 17.

New Haven "split" dealer t. w. cut 0.4c, July 18.

Rutland "split" dealer t. w. up 0.5c, July 18.

Corrections: Socony-Vacuum consumer tank car prices at some points have been incorrect in some recent issues of NPN. Following is correct record of changes for points mentioned: Buffalo, March 18 price was 7.6c; cut 0.3c to 7.3c June 10; cut 0.2c to 7.1c July 5; advanced 0.2c to 7.3c July 11; no change since that date. Rochester, March 19 price was 7.8c; no change since that date. Syracuse, March 14 price was 7.7c; cut 0.5c to 7.2c May 1; no change since that date.

Atlantic Refining—White Flash:

New Haven dealer t. w. cut 0.5c, July 13.

S. O. Indiana—Stanolind:

Quincy dealer up 1.3c, July 13.

The Texas Co.—Fire-Chief:

Waco dealer t. w. cut 0.5c, Austin dealer t. w. cut 1.5c, July 17.

The Texas Co.—Indian:

Waco dealer t. w. cut 0.5c, Austin dealer t. w. cut 2c, July 17.

Continental Oil—Conoco Bronz-z-z and Demand:

Cheyenne cut 0.5c, July 9.
Albuquerque up 1c, July 12.

Continental Oil—Kerosine:

Fort Smith t. w. cut 0.5c, March 2; cut 0.5c, April 18; up 0.5c, July 9.

CRUDE OIL PRICES

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given

EASTERN & CENTRAL STATES FIELDS

PENNSYLVANIA GRADE

Posted by Jos. Seep Purch. Agency (July 12, 1940)

Bradford-Allegany $2.00
Southwest Penna. $1.65
Eureka (West Va.) $1.59
Corning, O. (Nov. 4, 1939) $1.12

Posted by Tide Water Assoc. Oil Co. (July 12, 1940)

Bradford-Allegany $2.00

Posted by The Pennzoil Co. (July 12, 1940)

National Transit $1.93*

Posted by Valvoline Pipe Lines (July 12, 1940)

Bradford (Elk & McKean Counties, Pa.) $2.00
Warren, Forest, Venango, Clairon & Butler Counties, Pa. $1.93
Allegheny, Beaver, Washington & Greene Counties, Pa. $1.65
West Virginia $1.59
South Eastern Ohio $1.55

*Applies to Cochran, Franklin, Hamilton & Doolittle districts; prices in other lower districts range down to $1.88 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co. (Oct. 9, 1939)

Midland, Midland County $1.02
Sherman $0.97
Clare-Freeman $0.97

Posted by Simrall Corp. (Oct. 9, 1939)

Crystal, Greendale, Porter, Vernon and Wise $1.02
Beaverton, Buckeye, Bentley, Edenville $1.00
Freeman and Redding $0.97
Arenac $0.82
West Branch (Nov. 1, 1939) $0.85

Posted by Sohio Corp. (Michigan Division)

Allegan & Kent Counties (April 27, 1940) $1.08
Van Buren County (May 1, 1940) $1.08

Posted by Bay Pipe Line Corp. (Oct. 9, 1939)

Bentley and Buckeye $1.00
Saginaw and Wise ..... $1.02 Clare $0.76

ILLINOIS-INDIANA-KENTUCKY

Posted by Ohio Oil Co. (June 8, 1939)

Illinois and Western Indiana $0.95
Illinois Basin $1.05

Posted by Sohio Corp.

Illinois Basin:
Salem (Lake Centralia) (Oct. 21, 1939) $1.05
Balance of Illinois Basin (June 8, 1939) $1.05
Griffin (So. Ill.-Ind.) pool (May 25, 1940) $1.00

Posted by Carter Oil Co. (June 10, 1939)

Louden, Fayette County, Ill. $1.05

Posted by Mohawk Oil Lines, Inc. (June 1, 1940)

Southern Ill. heavy ..... $0.90 light $1.00

Posted by Ashland Oil & Transportation Co. (June 9, 1939)

Somerset Oil in Ashland Lines, Kentucky:
Big Sandy River ..... $1.02 Kentucky River $1.10

Posted by Sohio Corp. (June 9, 1939)

Birk City, Ky. Area $0.90
Corydon, Ky. Area (Henderson) $0.90

Posted by Owensboro-Ashland Co.

Owensboro, Ky. Area (June 9, 1939) $1.00

CANADIAN FIELDS

Posted by Imperial Oil Limited Western Ontario (Nov. 6, 1939)

Petrolia ..... $2.10 Oil Springs $2.17

Alberta Turner Valley (Jan. 5, 1938)
(Prices f.o.b. field tankage)

Crude Oil

40-40.9°	$1.14	53-53.9	$1.40
41-41.9	1.16	54-54.9	1.42
42-42.9	1.18	55-55.9	1.44
43-43.9	1.20	56-56.9	1.46
44-44.9	1.22	57-57.9	1.48
45-45.9	1.24	58-58.9	1.50
46-46.9	1.26	59-59.9	1.52
47-47.9	1.28	60-60.9	1.54
48-48.9	1.30	61-61.9	1.56
49-49.9	1.32	62-62.9	1.58
50-50.9	1.34	63-63.9	1.60
51-51.9	1.36	64-64.9	1.62
52-52.9	1.38		

Crude Naphtha, 65 grav. & above $2.14

Absorption Gasoline

90% Rec., 20 lb. Reid v.p. $1.94
90% Rec., 17 lb. Reid v.p. $2.08

*MID-CONTINENT—Oklahoma-Kansas

	S. O. Indiana	Carter Mag-nolia Shell	Conti-nental Texas Co.	Sin-clair Prairie
Below 21°	$0.70	$0.60	....	....
21-21.9	.72	.63	....	....
22-22.9	.74	.66	....	....
23-23.9	.76	.69	....	....
24-24.9	.78	.72	....	....
25-25.9	.80	.75	....	$0.58
26-26.9	.82	.78	....	.63
27-27.9	.84	.81	....	.68
28-28.9	.86	.84	$0.86	.73
29-29.9	.88	.87	.88	.78
30-30.9	.90	.90	.90	.82
31-31.9	.92	.92	.92	.86
32-32.9	.94	.94	.94	.90
33-33.9	.96	.96	.96	.96
34-34.9	.98	.98	.98	.98
35-35.9	1.00	1.00	1.00	1.00
36-36.9	1.02	1.02	1.02	1.02
37-37.9	1.04	1.04	1.04	1.04
38-38.9	1.06	1.06	1.06	1.06
39-39.9	1.08	1.08	1.08	1.08
40 & above	1.10	1.10	1.10	1.10

*Effective in 1938 by Carter Oil, Oct. 13, posting in Okla. only: Continental Oil, Oct. 11, with lowest grade below 29; Magnolia, Oct. 12, posting in Okla. only: Shell, Oct. 22; S. O. Indiana, Oct. 17; The Texas Co., Oct. 12. Aug. 31, 1939, by Sinclair-Prairie.

*North-North Central and Central Texas

	Stano-lind	Texas Co. Conti-nental Magnolia
Below 21°	$0.60	....
21-21.9	.62	....
22-22.9	.64	....
23-23.9	.66	....
24-24.9	.68	$0.79
25-25.9	.70	for
26-26.9	.72	oil
27-27.9	.74	below
28-28.9	.76	29°.
29-29.9	.78	.81
30-30.9	.80	.83
31-31.9	.82	.85
32-32.9	.84	.87
33-33.9	.86	.89
34-34.9	.88	.91
35-35.9	.90	.93
36-36.9	.92	.95
37-37.9	.94	.97
38-38.9	.96	.99
39-39.9	.98	1.01
40 & above	1.00	1.03

*Effective Oct. 11, 1938 by Continental, in North Tex.: Oct. 12, 1938, by Texas Co. in North & North Central Texas. Texas Co.'s lowest grade is 28-28.9, at $0.79; by Magnolia, Dec. 3, 1938, in N. and N. Central Texas; July 16, 1940, Sinclair-Prairie posted flat price of 75c for Mexia and North Central Texas.

Jefferson County, Texas—Beaumont

(Posted by Magnolia Petroleum Co., Effective Oct. 2, 1939, and by Stanolind Oil & Gas Co., for West Beaumont, Effective Oct. 2, 1939)

Below 20°	$0.86	30-30.9	$1.08
20-20.9	.88	31-31.9	1.10
21-21.9	.90	32-32.9	1.12
22-22.9	.92	33-33.9	1.14
23-23.9	.94	34-34.9	1.16
24-24.9	.96	35-35.9	1.18
25-25.9	.98	36-36.9	1.20
26-26.9	1.00	37-37.9	1.22
27-27.9	1.02	38-38.9	1.24
28-28.9	1.04	39-39.9	1.26
29-29.9	1.06	40 & above	1.28

TEXAS FIELDS

Posted by Humble Oil & Refining Co.

*West Central Texas (Aug. 11, 1939)

24-24.9	$0.71	33-33.9	$0.89
25-25.9	.73	34-34.9	.91
26-26.9	.75	35-35.9	.93
27-27.9	.77	36-36.9	.95
28-28.9	.79	37-37.9	.97
29-29.9	.81	38-38.9	.99
30-30.9	.83	39-39.9	1.01
31-31.9	.85	40 & above	1.03
32-32.9	.87		

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young Counties.

Effective Aug. 29, 1939, Shell posted in Fisher county, Tex., prices 3c lower than Humble's West Central Texas prices; Shell's schedule begins with below 25, at $0.68 and ends with 40 & above, at $1.

Note: Effective Oct. 1, 1937, Humble prices are based on 100% tank tables at 60F.

*East Central Texas (Aug. 11, 1939)

23-23.9	$0.78	32-32.9	$0.96
24-24.9	.80	33-33.9	.98
25-25.9	.82	34-34.9	1.00
26-26.9	.84	35-35.9	1.02
27-27.9	.86	36-36.9	1.04
28-28.9	.88	37-37.9	1.06
29-29.9	.90	38-38.9	1.08
30-30.9	.92	39-39.9	1.10
31-31.9	.94	40 and above	1.12

Posted by Pan American Pipe Line Co.
(Oct. 2, 1939)

Cayuga, Anderson county $0.78

*Including Anderson, Cherokee, Limestone, Navarro counties.

PANHANDLE TEXAS

	Humble (Aug. 11, 1939)		Texas Co. (Oct. 2, 1939)	
	Gray County	Carson Hutchin-son	Sweet	Sour
28-28.9	$0.72	$0.67	....	....
29-29.9	.74	.69	....	....
30-30.9	.76	.71	....	....
31-31.9	.78	.73	....	....
32-32.9	.80	.75	....	....
33-33.9	.82	.77	....	....
34-34.9	.84	.79	$0.84	$0.79
35-35.9	.86	.81	.86	.81
36-36.9	.88	.83	.88	.83
37-37.9	.90	.85	.90	.85
38-38.9	.92	.87	.92	.87
39-39.9	.94	.89	.94	.89
40 & above	.96	.91	.96	.91

Effective Aug. 31, 1939, Sinclair Prairie met Humble in Panhandle Texas. Dec. 3, 1938, Magnolia posted same schedule as Humble.

*EAST TEXAS

By Humble, Shell, Sinclair-Prairie, Stanolind, Gulf, Magnolia, Texas Co., Tide Water-Associated $1.10

*Effective dates: Aug. 11, 1939, by Humble and Tide Water-Associated; Aug. 29, 1939, by Stanolind; Oct. 2, 1939 by Sinclair Prairie; Oct. 5, 1939 by Shell; Oct. 12, 1938, by Magnolia, Texas Co.; Oct. 13, 1938, by Gulf.

*Includes Cherokee, Gregg, Rusk, Smith and Upshur counties.

Posted by Shell Oil Co., Inc. (Oct. 5, 1939)

Polk County, Tex. (Livingston area) $1.10

NORTHEAST TEXAS

(Posted by Humble, Oct. 2, 1939)

Talco $0.65

(Posted by Magnolia, Oct. 12, 1938)

Cass County and Panola County, Tex.:

Magnolia posts below 25° at $0.73, plus 2c differential for each degree, to top grade of 40 & above, at $1.05.

(Posted by The Texas Co., Oct. 12, 1938)

Cass County $1.05

(a) WEST TEXAS and NEW MEXICO

	Humble	Stano-lind	Shell	Texas Co. Sinclair (c)
Below 20°	$0.53	....	$0.53	....
20-20.9	.55	....	.55	....
21-21.9	.57	....	.57	....
22-22.9	.59	$0.67	.59	....
23-23.9	.61	for	.61	....
24-24.9	.63	oil	.63	....
25-25.9	.65	Below	.65	$0.65
26-26.9	.67	26°.	.67	.67
27-27.9	.69	.69	.69	.69
28-28.9	.71	.71	.71	.71
29-29.9	.73	.73	.73	.73
30-30.9	.75	.75	.75	.75
31-31.9	.77	.77	.77	.77
32-32.9	.79	.79	.79	.79
33-33.9	.81	.81	.81	.81
34-34.9	.83	.83	.83	.83
35-35.9	.85	.85	.85	.85
36-36.9	.87	.87	.87	.87
37-37.9	.89	.89	for	for
38-38.9	.91	.91	oil	oil
39-39.9	.93	.93	36° &	36° &
40 & above	.95	.95	above.	above.

Posted by Magnolia Petroleum Co.

(Oct. 12, 1938 in West Texas;
Oct. 15, 1939 in Lea County, N. Mex.)

	West Texas	N. Mex.		West Texas	N. Mex.
Below 25.	$0.63	$0.63	33-33.9	$0.81	$0.81
25-25.9	.65	.65	34-34.9	.83	.83
26-26.9	.67	.67	35-35.9	.85	.85
27-27.9	.69	.69	36-36.9	.87	.87
28-28.9	.71	.71	37-37.9	.89	for
29-29.9	.73	.73	38-38.9	.91	oil
30-30.9	.75	.75	39-39.9	.93	36 &
31-31.9	.77	.77	40 & over.	.95	above
32-32.9	.79	.79			

Note: Magnolia's West Texas postings are in Crane, Glasscock, Howard, Mitchell, Upton and Winkler counties.

Pecos County, West Texas

(Posted by Humble Aug. 11, 1939 and Shell, Aug. 29 '39)

Pecos $0.78
Yates Shallow Pool (Shell only) ..... .65

Posted by Sinclair Prairie Oil Marketing Co.
(Aug. 31, 1939)

Eddy county, N. Mex. $0.77

(a) Effective Aug. 11, 1939 by Humble; Shell Oil, Aug. 29, 1939; by The Texas Co., Oct. 12, 1938; Stanolind, Aug. 29, 1939; Sinclair Prairie, Aug. 31, 1939.

(c) Texas Co. posts $0.65 for below 26; Sinclair Prairie, $0.63 for below 25.

Note: Humble's postings are in these counties: Andrews, Crane, Crockett, Ector, Gaines, Glasscock, Howard, Reagan, Upton, Winkler and Yoakum, West Texas; and Lea county, N. Mex.; Shell, in Crane, Ector, Glasscock, Howard, Upton, Winkler, Yoakum, Lea; Stanolind in Hendrick and Henderson field, Winkler county; Texas Co. in Ward, Winkler and Lea

Posted by Continental Oil Co. (Oct. 11, 1938)

Artesia, Jackson and Maljamar pools, New Mexico; gravity schedule beginning with below 29, at $0.61; 29-29.9, at $0.63; plus 2c differential for each gravity, up to 40 & above, at $0.85.

COLORADO

Posted by Continental Oil Co. (Oct. 11, 1938)

Ft. Collins and Wellington

Below 29	$0.81	35-35.9	$0.95
29-29.9	.83	36-36.9	.97
30-30.9	.85	37-37.9	.99
31-31.9	.87	38-38.9	1.01
32-32.9	.89	39-39.9	1.03
33-33.9	.91	40 & above	1.05
34-34.9	.93		

Canon City and Florence, Col. $0.90

SOUTH AND SOUTHWEST TEXAS

All Shown Below Posted by Humble Oil & Refining Co. (Aug. 11, 1939)

Carroll, Clark, Darst Creek, Hilbig, Salt Flat and Zoboroski crudes $0.96
Van crude $0.93
Conroe $1.27

(Oct. 2, 1939)

Flour Bluff and Jim Wells County $1.23

(Sept. 14, 1939)

Hardin, Liberty county $1.10

Oct. 12, '38, Magnolia posted $0.96 in Darst Creek; $0.87 in Luling; $0.99 in Lytton Springs; $1.14 for Cleveland, and $1.02 in Hardin, both in Liberty county, Tex.

Oct. 12, '38, The Texas Co. posted $0.96 in Darst Creek.

(Continued on next page)

CRUDE OIL PRICES

(Continued from preceding page)

***Anahuac-Dickinson** (Oct. 2, 1939)

Below 20°	$0.81	30-30.9	$1.03
20-20.9	.83	31-31.9	1.05
21-21.9	.85	32-32.9	1.07
22-22.9	.87	33-33.9	1.09
23-23.9	.89	34-34.9	1.11
24-24.9	.91	35-35.9	1.13
25-25.9	.93	36-36.9	1.15
26-26.9	.95	37-37.9	1.17
27-27.9	.97	38-38.9	1.19
28-28.9	.99	39-39.9	1.21
29-29.9	1.01	40 & above	1.23

*Anahuac-Dickinson includes Cedar Point, Fairbanks, Gillock, Hull, Pierce Junction and Raccoon Bend (shallow sand) and Turtle Bay.

Raccoon Bend (Deep sand crude) Tomball and Satsuma (Aug. 11, 1939)

22-22.9	$0.95	32-32.9	$1.15
23-23.9	.97	33-33.9	1.17
24-24.9	.99	34-34.9	1.19
25-25.9	1.01	35-35.9	1.21
26-26.9	1.03	36-36.9	1.23
27-27.9	1.05	37-37.9	1.25
28-28.9	1.07	38-38.9	1.27
29-29.9	1.09	39-39.9	1.29
30-30.9	1.11	40 & above	1.31
31-31.9	1.13		

Dec. 3, 1938, Magnolia posted above price and gravity schedule in Tomball. Effective Aug. 29, 1939, Stanolind met Humble in Tomball, except that Stanolind's schedule begins with below 29 at $1.07.

LOUISIANA-ARKANSAS

Posted by Standard Oil Co. of Louisiana

(†) (For effective dates, see footnote)

	*N. La. Ark. Sweet	Bunkie Eola, La.	*South La. Sour	*Ark. Sour	Baton Rouge-University
Below 20°					$0.79
20-20.9	$0.73	$0.83	‡$0.74	$0.63	.82
21-21.9	for	for	.77	for	.85
22-22.9	oil	oil	.80	oil	.88
23-23.9	Below	Below	.83	Below	.91
24-24.9	25°	25°	.86	25°	.94
25-25.9	.75	.85	.89	.65	.97
26-26.9	.77	.87	.92	.67	1.00
27-27.9	.79	.89	.94	.69	1.02
28-28.9	.81	.91	.96	.71	1.04
29-29.9	.83	.93	.98	.73	1.06
30-30.9	.85	.95	1.00	.75	1.08
31-31.9	.87	.97	1.02	.77	1.10
32-32.9	.89	.99	1.04	.79	1.12
33-33.9	.91	1.01	1.06	.81	1.14
34-34.9	.93	1.03	1.08	.83	1.16
35-35.9	.95	1.05	1.10	.85	1.18
36-36.9	.97	1.07	1.12	.87	1.20
37-37.9	.99	1.09	1.14	.89	1.22
38-38.9	1.01	1.11	1.16	.91	1.24
39-39.9	1.03	1.13	1.18	.93	1.26
40 & above	1.05	1.15	1.20	.95	1.28

(Aug. 30, 1939)

Smackover, Ark.	$0.73
Cotton Valley Distillate	$1.20

*N. La.-Ark. Sweet includes Caddo, Cotton Valley, Cross Lake, De Soto, Haynesville, Homer, Rodessa, Sabine and Sligo, La. crudes, and Miller county, Ark. S. La. Sour includes Choctaw, Darrow, N. Crowley, Roanoke and St. Martinsville. S. Ark. Sour includes Buchner, Magnolia and Village pools.

†N. La.-Ark. Sweet crude and S. La. Sour effective Aug. 30, 1939, except Cross Lake, La., Sept. 7, Baton Rouge-Univ., Sept. 11, and Bunkie and Eola, Oct. 23, 1939; and Ark. Sour, Sept. 13, 1939.

‡For Below 21°.

Effective Sept. 8, 1939, Gulf Refg. Co. met S. O. La's. N. La.-Ark. Sweet prices in Bull Bayou, Caddo, Crichton, De Soto, Haynesville, Homer, and El Dorado.

Posted by Arkansas Fuel Oil Corp.

Urania, La. (Jan. 28, 1937)	$1.02

Posted by Continental Oil Co.

(Oct. 11, 1938)

Tepetate and Ville Platte, La.	$1.03

(Jan. 1, 1939)

Abbeville, La.

Below 36	$0.92	38-38.9	$0.98
36-36.9	.94	39-39.9	1.00
37-37.9	.96	40 & above	1.02

Posted by Caddo Crude Oil Purchasing Corp.

(Aug. 14, 1939)

Allison area, Shreveport field	$0.95

Lisbon, N. La. (Sept. 14, 1939)

27-27.9	$0.66	32-32.9	$0.76
28-28.9	.68	33-33.9	.78
29-29.9	.70	34-34.9	.80
30-30.9	.72	35 & above	.82
31-31.9	.74		

Lisbon prices met by Gulf, Sept. 14.

Note: S. O. Louisiana prices in all La.-Ark. fields, effective Oct. 5, 1938, are on 100% tank table basis.

GULF COASTAL FIELDS

(a) (For effective dates, see footnote)

	Humble Sinclair Stano-lind	Refugio Crude (Humble, Conti-nental)	Texas Co.	Shell
Below 20	$0.86	$0.91	$0.86	(b)$0.79
20-20.9	.88	.93	.88	.81
21-21.9	.90	.95	.90	.83
22-22.9	.92	.97	.92	.86
23-23.9	.94	.99	.94	.89
24-24.9	.96	1.01	.96	.92
25-25.9	.98	1.03	.98	.95
26-26.9	1.00	1.05	1.00	.98
27-27.9	1.02	1.07	1.02	1.00
28-28.9	1.04	1.09	1.04	1.02
29-29.9	1.06	1.11	1.06	1.04
30-30.9	1.08	1.13	1.08	1.06
31-31.9	1.10	1.15	1.10	1.08
32-32.9	1.12	1.17	1.12	1.10
33-33.9	1.14	1.19	1.14	1.12
34-34.9	1.16	1.21	1.16	1.14

(Continued in next column)

35-35.9	1.18	1.23	for oil	for oil
36-36.9	1.20	1.25		
37-37.9	1.22	1.27	34° & above.	34° & above.
38-38.9	1.24	1.29		
39-39.9	1.26	1.31		
40 & above	1.28	1.33		

(a) Effective Oct. 2, 1939 by Continental, Humble and Texas Co.; Oct. 3, 1939 by Sinclair and Stanolind; Aug. 29, 1939 by Shell. Stanolind's lowest grade is below 21, at $0.88. Refugio, effective Oct. 2, '39 by Humble.

(b) Shell posts these prices in Iowa district, Black Bayou and White Castle, La.; prices in Iowa district have 2 lower grades: below 18, at $0.75, 18-18.9, $0.77; and 19-19.9, is $0.79.

Note: Humble's Gulf Coast prices apply in these Texas fields: Amelia, Clear Lake, Goose Creek, Mirando which includes Duval, Jim Hogg, Webb and Zapata counties and Heyser and Placedo fields; Mykawa, Sugarland, Thompsons and Webster.

Humble's prices in Refugio include crudes purchased in Saxet, East White Point, Greta, O'Connor-McFadden, Taft, Plymouth and Tom O'Connor fields.

Stanolind's prices apply in High Island and Spindletop; also in Clinton, Hastings and South Houston, where, effective Jan. 1, 1940, lowest grade is below 21° at $0.88; rest of schedule same as other Gulf Coast. Magnolia posts Mirando, effective Oct. 2, same prices as Humble. Texas Co.'s prices are in Texas and La., Gulf Coast; its prices on Refugio are same as Humble's up to 28 gravity; 28 & above, $1.09; on Duval-Mirando same as Humble's up to 28; 28 & above, $1.04; it posts Golden Meadow, La., 24-30 grav., $0.90, plus 2c differential, to 40 & above, $1.10.

Posted by Shell Oil Co., Inc. (Aug. 29, 1939)

Gibson field, Terrebonne Parish, La.	$1.04

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co.

(Effective Oct. 11, 1938)

Salt Creek, (except Tensleep crude), Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma-Kansas, ranging from $0.86 to $1.10, which see under Mid-Continent crude on previous page.

Tensleep, Salt Creek field	$0.646
Hes, heavy	0.92
Elk Basin, light	0.90
Grass Creek, light	0.90
Frannie light	0.55
Grass Creek, heavy	0.40
Hamilton Dome, Wyo.	0.35
Frannie heavy	0.42

Posted by Ohio Oil Co. (Oct. 11, 1938)

Elk Basin, Wyo.	$0.90	Rock Creek	1.00
Grass Creek, light	0.90	Lance Creek	0.77
Dry Creek, Mont.			0.92
Grass Creek, heavy (May 1, 1938)			$0.50
Sunburst, Mont. (Nov. 16, 1937)			$0.90

Posted by Continental Oil Co.

(Oct. 11, 1938)

Cat Creek, Mont.	$1.10
Big Muddy, Wyo.	0.98
Lance Creek, Wyo.	0.77

CALIFORNIA. *Posted by Standard Oil of California*

All gravities above those quoted take highest price offered in the field. Prices effective Feb. 1, 1940

Gravity	Signal Hill (Long Beach) and others*	Seal Beach	Huntington Beach	Inglewood	Playa Del Rey	Ollindo Rosa Canon	Athens-Rosecrans	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Greeley Canal	Colen Lever Richfield Western	Mountain View and others**	Elk Hills	Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria Val. (Union Oil, Sept. 1 '39)
14-14.9	$0.65	$0.64	$0.63	$0.64	$0.65	$0.61	....	$0.65	$0.61	$0.61	$0.62	$0.63	....	....	....	$0.60	$0.60	$0.60	$0.60	$0.60	....	$0.42
15-15.9	.65	.64	.63	.64	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	.60	....	.44
16-16.9	.65	.64	.63	.64	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	.60	....	.45
17-17.9	.65	.64	.63	.68	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	.60	....	.46
18-18.9	.65	.64	.63	.71	.65	.65	....	.68	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	.60	....	....
19-19.9	.69	.64	.67	.75	.70	.69	....	.72	.61	.65	.62	.63	....	....	....	.60	.64	.64	.64	.61	$0.60	....
20-20.9	.73	.64	.72	.79	.76	.74	....	.75	.65	.69	.62	.67	....	....	....	.60	.69	.69	.69	.62	.60	....
21-21.9	.78	.64	.76	.82	.81	.78	....	.79	.69	.73	.62	.72	$0.63	....	....	.64	.74	.74	.74	.66	.60	....
22-22.9	.82	.69	.81	.86	.86	.82	....	.82	.73	.77	.66	.76	.63	....	....	.68	.79	.79	.78	.70	.63	....
23-23.9	.86	.75	.85	.89	.92	.86	$0.71	.86	.78	.82	.71	.81	.67	....	....	.71	.84	.84	.82	.74	.67	....
24-24.9	.90	.80	.90	.93	.97	.90	.77	.89	.82	.86	.75	.85	.72	....	....	.75	.89	.89	.86	.78	.71	....
25-25.9	.95	.86	.94	.96	1.02	.95	.82	.93	.86	.90	.80	.89	.77	....	....	.79	.94	.94	.90	.82	.75	....
26-26.9	.99	.91	.99	1.00	1.08	.99	.88	.96	.90	.94	.84	.94	.82	....	....	.83	.99	.99	.95	....	....	....
27-27.9	1.03	.97	1.03	1.04	....	1.03	.94	1.00	.94	.98	.89	.98	.87	$0.83	$0.92	.87	1.04	1.04	.99	....	....	....
28-28.9	1.07	1.02	1.07	1.07	....	1.07	.99	1.03	.98	....	.93	1.02	.91	.86	.96	.91	1.09	1.09	1.03	....	....	....
29-29.9	1.10	1.07	1.11	1.10	....	1.10	1.04	1.06	1.02	....	.98	1.06	.96	.90	.99	.95	1.14	1.14	1.07	....	....	....
30-30.9	1.14	1.12	1.15	1.14	....	1.14	1.09	1.09	....	....	1.02	1.10	1.01	.94	1.02	.99	1.19	1.19	1.11	....	....	....
31-31.9	....	....	....	1.17		1.17	1.14	Elwood Terrace			1.07	1.14	1.05	.98	1.06	1.02	1.24	1.24				....
32-32.9	....	....	....	1.20		1.20	1.19	F. o. b. ship.			1.11	1.18	1.09	1.02	1.09	1.06	1.29	1.29	Kettleman Hills			....
33-33.9	....	....	....	....		....	1.24	....	$1.21	....	1.15	1.22	1.14	1.06	1.13	1.10	1.34	1.34	....	$1.12	....	....
34-34.9	....	....	....	....		....	1.29	....	1.25	....	1.20	1.26	1.19	1.10	1.16	1.14	....	....	....	1.17	....	....
35-35.9	....	....	....	....		....	1.34	....	1.29	....	1.24	....	1.23	1.14	1.20	....	....	....	....	1.21	....	....
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FOB Standard Pipeline

*El Segundo prices same as Signal Hill. Wilmington prices same as Signal Hill, except below 19 gravity prices are: 14-16.9, $0.60; 17-17.9, $0.62; 18-18.9, $0.64.

**Includes Newhall, McKittrick, Kern River, Round Mountain and Kern Front, schedule for which ends with 19-19.9. Mountain View schedule begins with 19-19.9.

CLASSIFIED

Address all Blind Box Number ads to National Petroleum News, 530 Penton Building, Cleveland, Ohio, unless otherwise specified.

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Small Refinery in N. E. Wyoming. Skimming plant catering mostly to local retail trade. Doing good profitable business. Other interests require my time. Will stand thorough investigation. Two modern dwellings. Plant buildings and equipment in first class condition. A small gold mine for the right party. Priced for quick sale at $7,500. Box No. 508.

One full skirted, streamlined tank truck. Four compartment, 825 gallon tank on two ton Stewart chassis. Write for photograph, details and price. Van Dyne Oil Co., Troy, Pa.

10 clean 8,000 gal. class 3 tank cars in Chicago switching district. Good mechanical condition. Steel side frames. $750.00 each. Box No. 608.

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Refinery Executive. 26 years old, single. 3½ years experience; construction, maintenance and operation; cracking, reforming, re-running, absorption and stabilization equipment. Box No. 605.

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Bulk storage tanks and used computing gasoline pumps; Give size, condition, age, price and location where equipment can be seen. Box No. 606.

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Copy must reach us not later than Saturday preceding date of issue.

All advertisements carried on this page are payable in advance.

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· PERSONALS ·

W. T. Leeper

W. T. Leeper of Shreveport has been named vice president in charge of sales for Bayou State Oil Corp., according to announcement by Bayou President **Paul M. Brown.** As sales manager for Bayou State, Mr. Leeper has covered what has been called the largest individual territory in the oil business, traveling in each of the country's 48 states. He holds a commission as captain in the Officers Reserve Corps, U. S. Army.

Col. T. H. Barton, Eldorado, Ark., Lion Oil and Refining Co., was a delegate to the Democratic National convention in Chicago last week. Col. Barton is Democratic National Committeeman from Arkansas.

Among the non-delegate visitors at convention were **William Boyd,** executive vice-president of the American Petroleum Institute, and **Russell Brown,** Independent Petroleum Association of America.

When the Virginia delegation was polled radio listeners heard **Overton Dennis** cast his vote for Speaker Bankhead of Alabama for vice presidential nomination. Presumably, it was the Richmond oil marketer of that name.

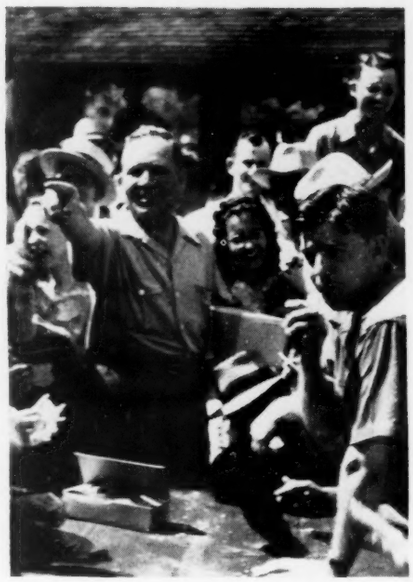
An NPNer, sitting beside his radio at home, was willing to bet that he had heard the voice of **T. Wilbur "Buddy" Thornhill,** Charleston Oil Co., announce South Carolina's vote during one roll call but a check around Chicago by the NPN bureau failed to locate the Chasonoil chief. Was you there, Buddy?

Robert M. Stith, Wake Up Systems, Inc., and veteran oil jobber of Indianapolis is touring this month, looking at service stations and visiting a lot of territory he covered with the Texas Co. years ago. Bob has his family with him, Mrs. Stith and a son and daughter. They went through Cleveland last week en route to Maine. They will go down the Atlantic Coast to the Carolinas and then back home. Trip will take at least a month.

* * *

Highlighting a series of sales campaigns for the first half of 1940, some 1000 Phillips Petroleum Co. dealers, bulk agents and jobbers July 16 celebrated a "Mid-Summer Jub-a-lee" at Woolaroc Ranch, Bartlesville, Okla. showplace of **Frank Phillips,** board chairman of the Phillips company. Old time picnic with horse shoe pitching, sack races, nail driving contests for ladies only, cracker-eating marathons and tug-o-war contests furnished entertainment. **Mrs. Frank Phillips** assisted in serving the barbeque dinner.

Listed on the program was a tour of Woolaroc museum and a "grand drawing," with merchandise prizes. **G. R. Ames,** Tulsa division manager acted as master of ceremonies, with **A. L. Lincoln** of the Tulsa division offices in charge of arrangements.



Cracker-eating was a dry-as-dust contest, at Tulsa, when jobbers and dealers of Phillips Petroleum Co. went in for some high-speed munching. **V. D. Peters,** a Phillips assistant manager, struck this tobacco auctioneer pose as he judged the struggle, which was pretty hard on tonsils of participants

The "West Siders" in this tug-o-war staged at the Phillips Petroleum Co. Mid-summer Jub-a-lee were captained by **R. A. (Bob) Salts** (extreme right), assistant manager of Phillips' Tulsa division. That haze hovering over the West-Siders couldn't be explained by the photographer, but may have foreshadowed the pile-up that resulted later when the "East Siders" let go